

JANE'S FIGHTING SHIPS 1965-66

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Compiled and Edited by
RAYMOND V. B. BLACKMAN,
M.I.Mar.E., M.R.I.N.A.

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FIBRE OPTICS



The illustration shows a fibre optic faceplate which transmits the image of the banknote on which it is placed to the upper surface. Faceplates of this type are used on cathode ray tubes because of their high light-collecting efficiency, because by transferring the image to the outer surface of the tube it is possible to make contact prints and because the image is visible in high ambient light conditions.

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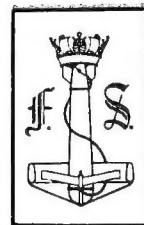
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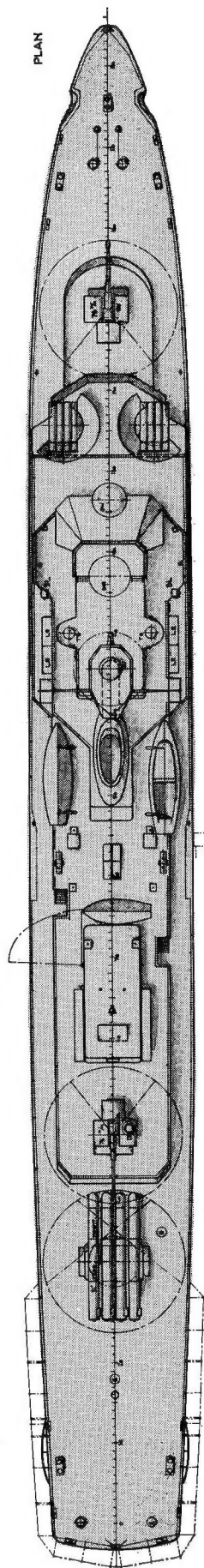
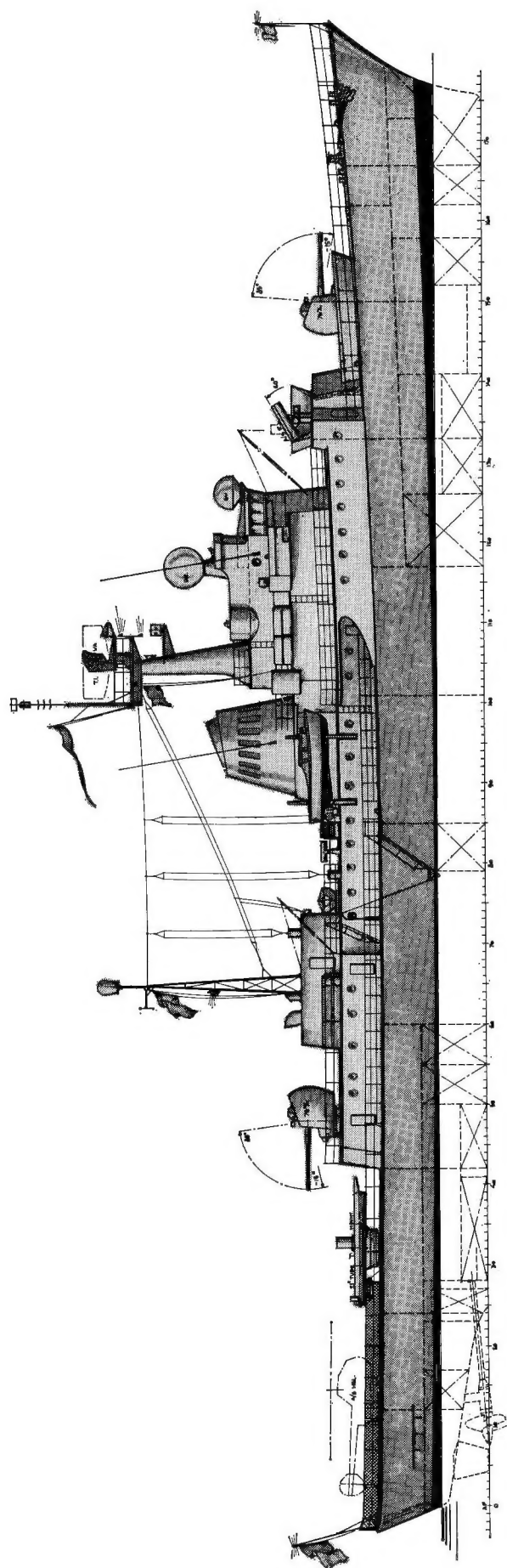
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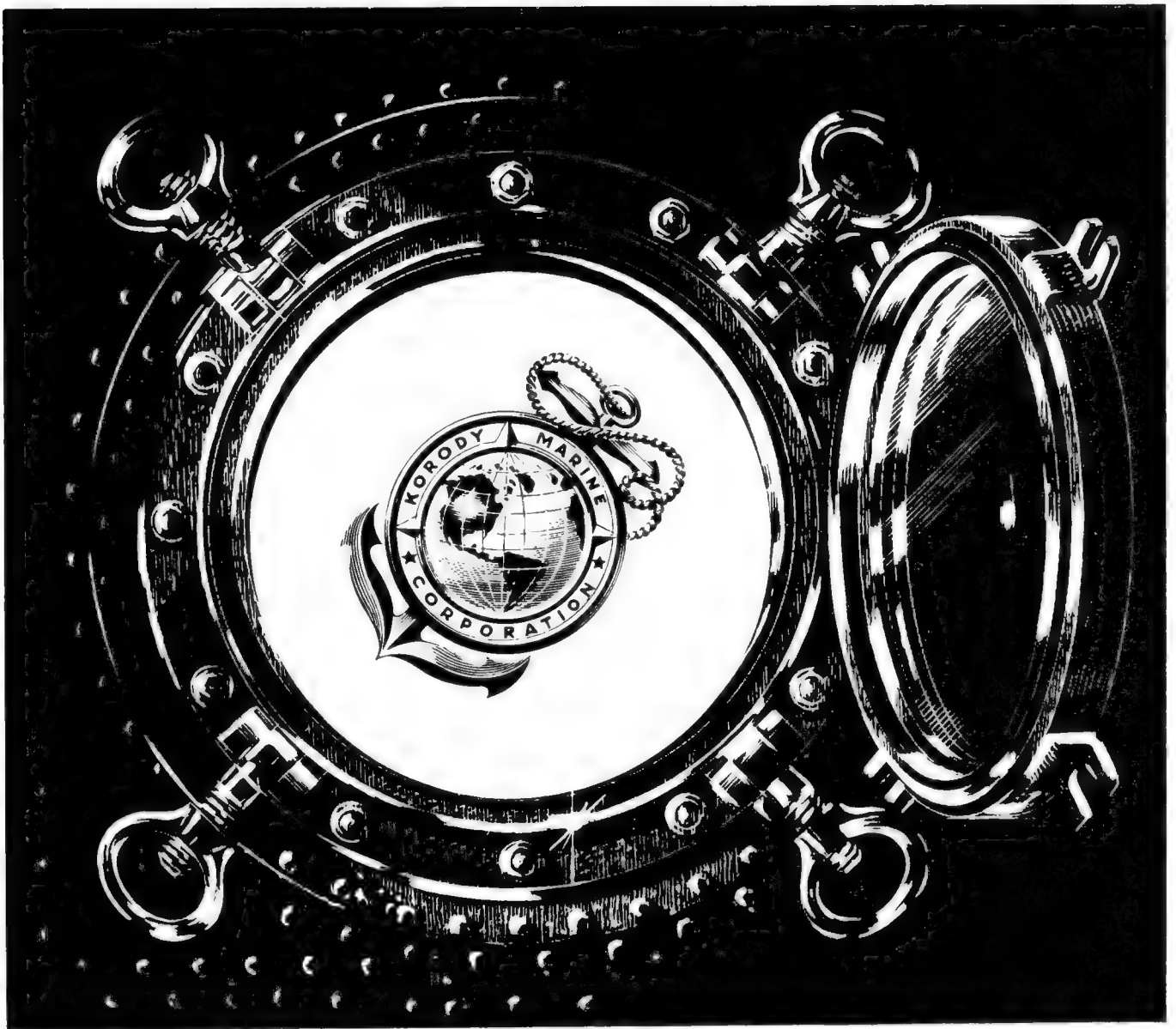
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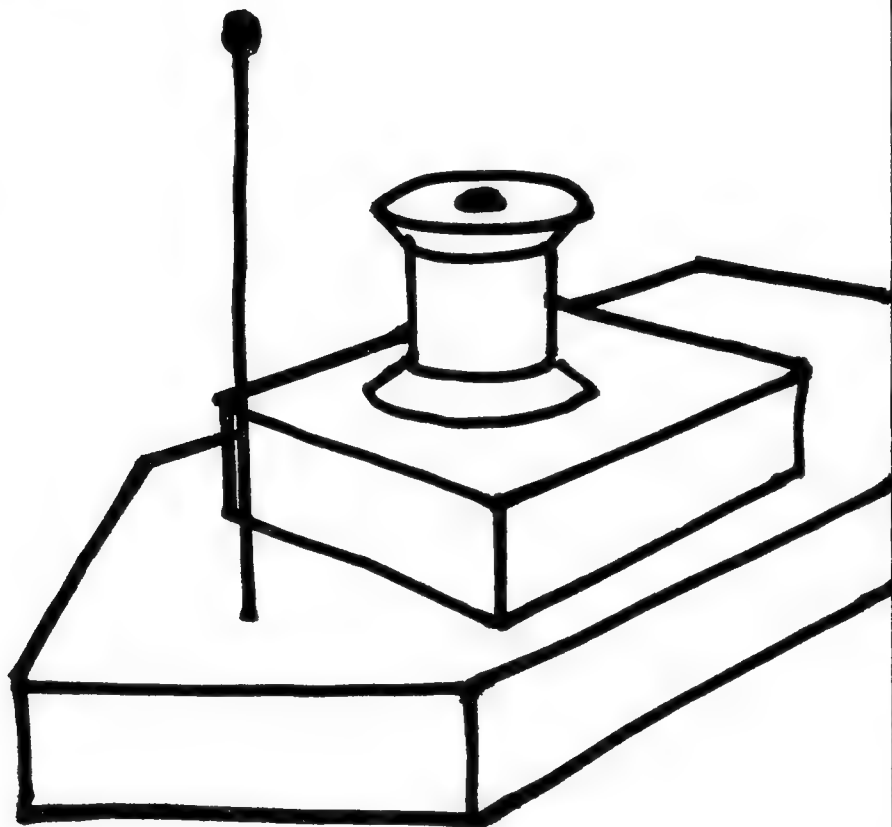
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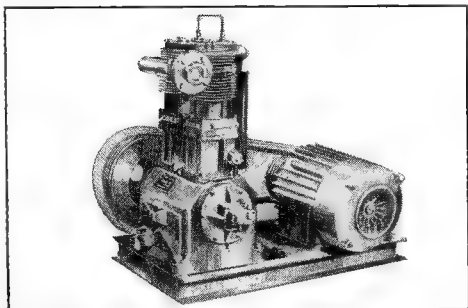


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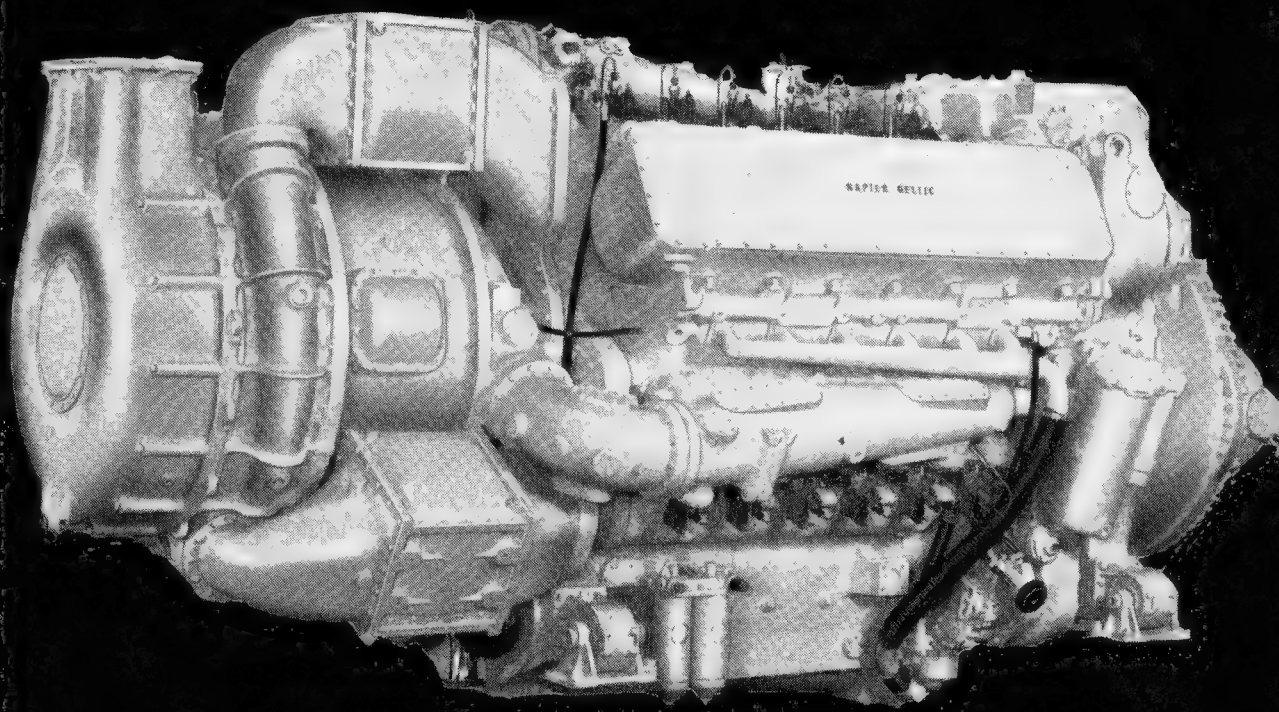
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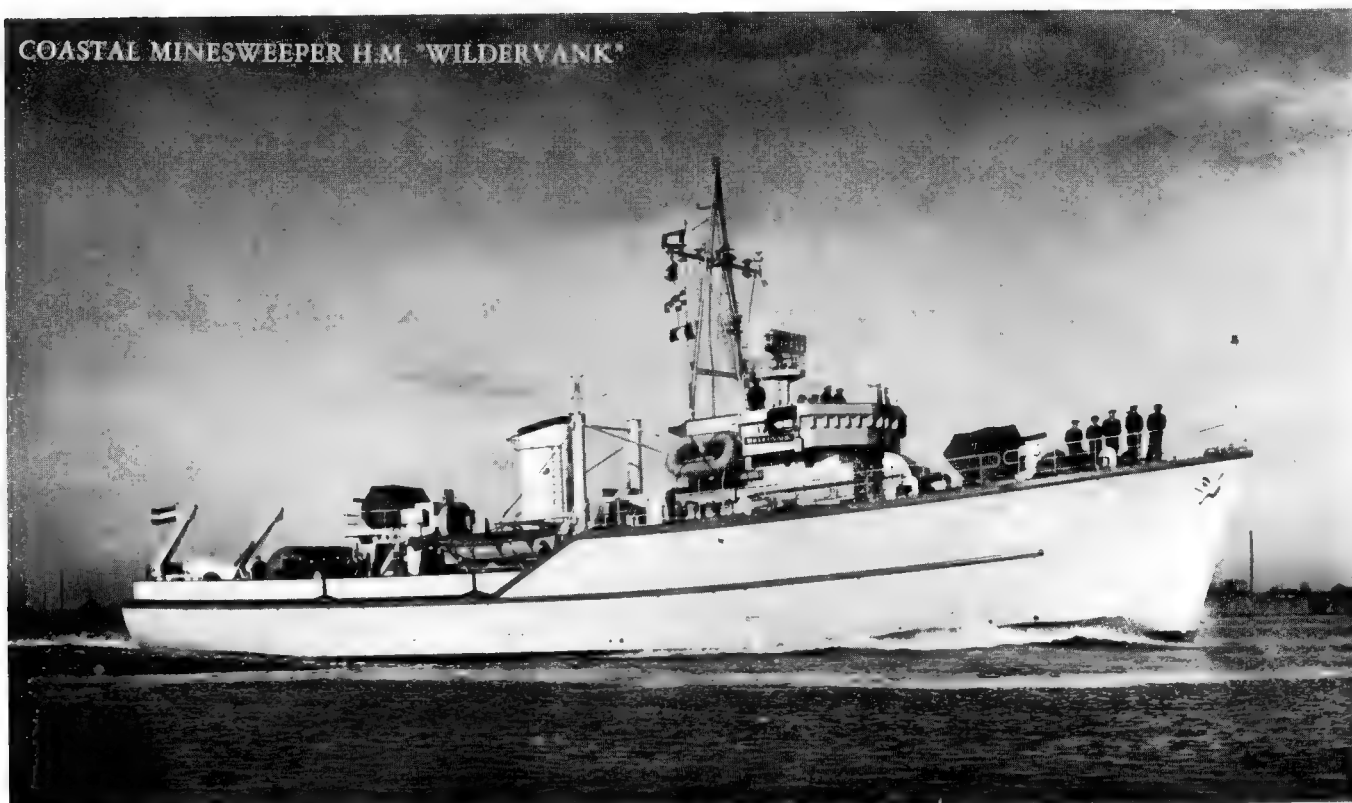
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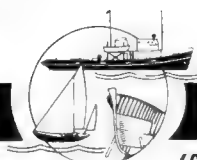
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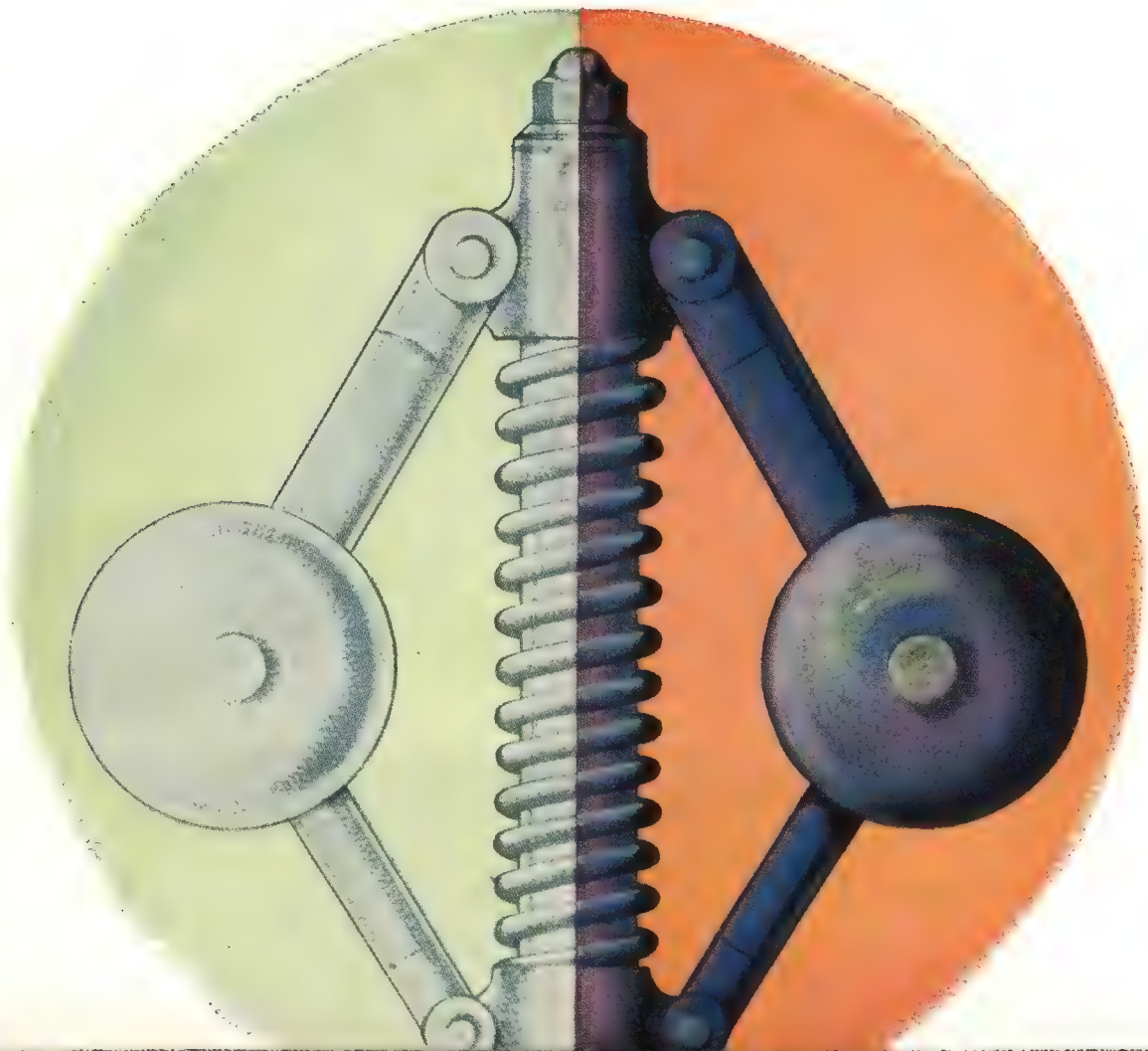


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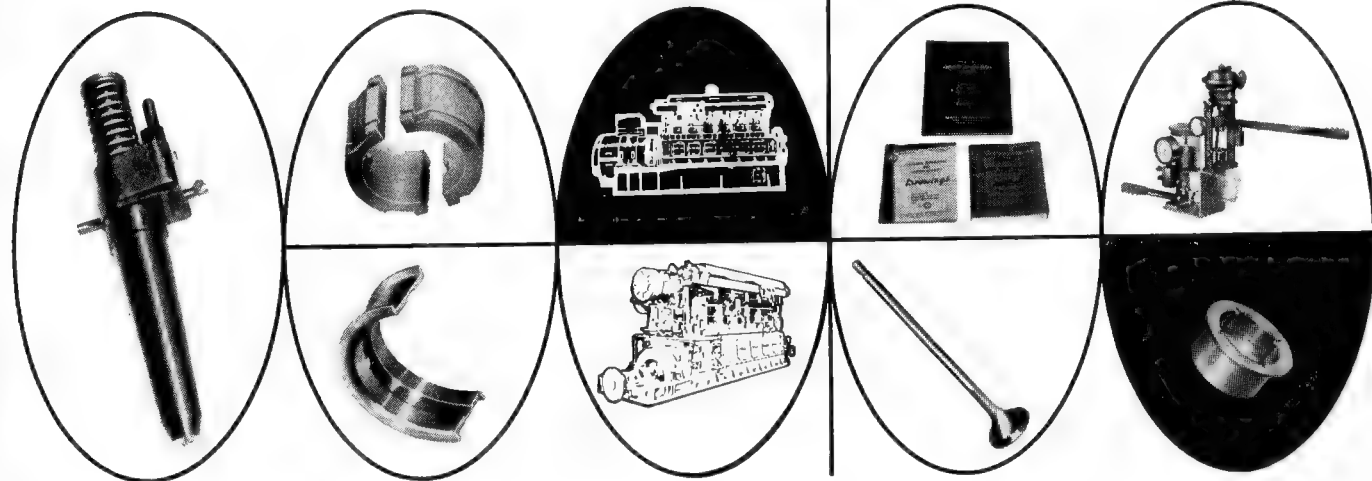
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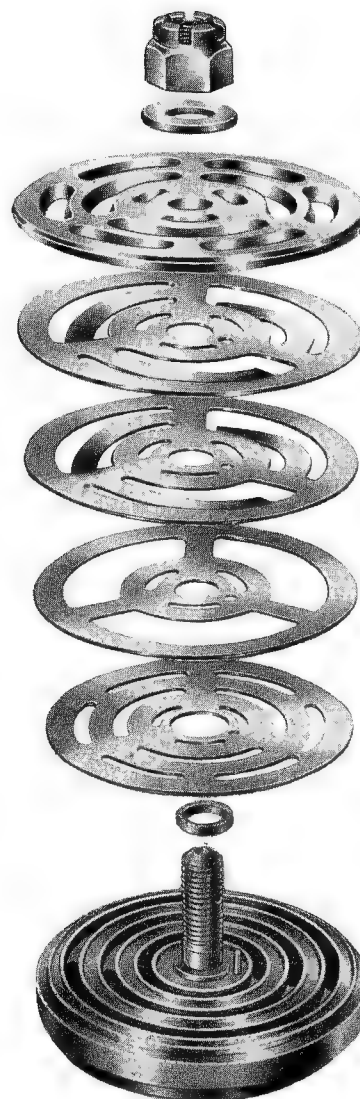
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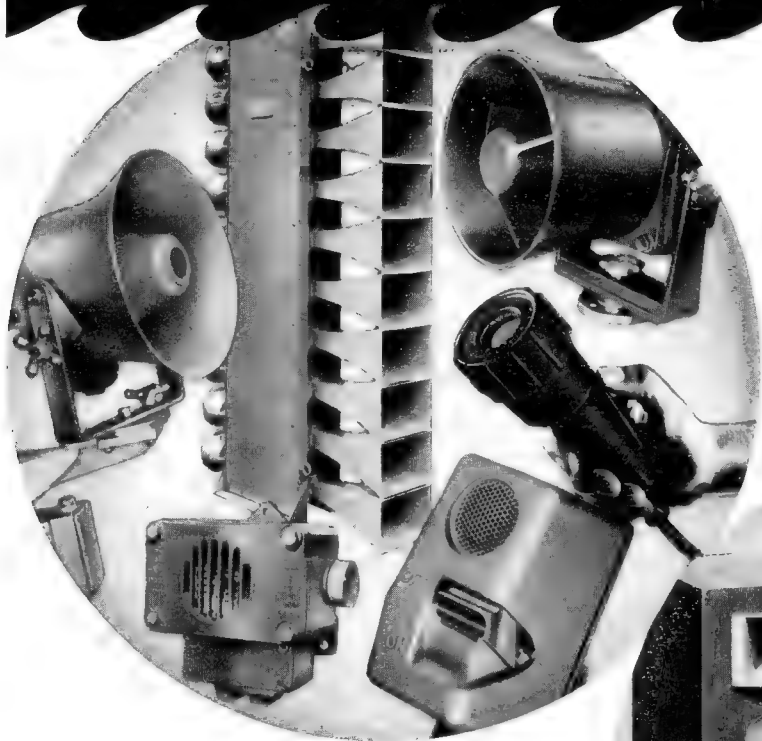
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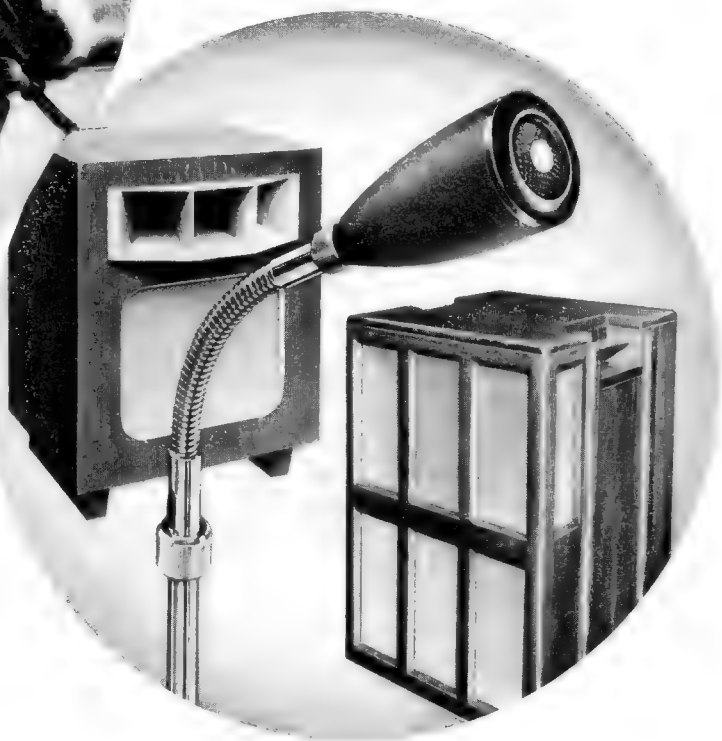


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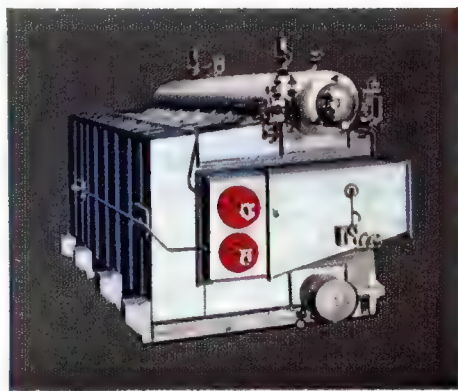
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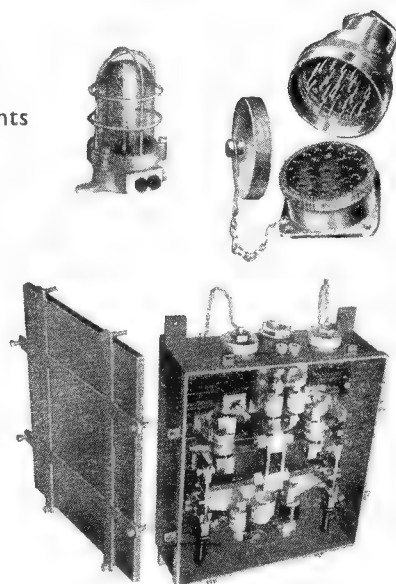
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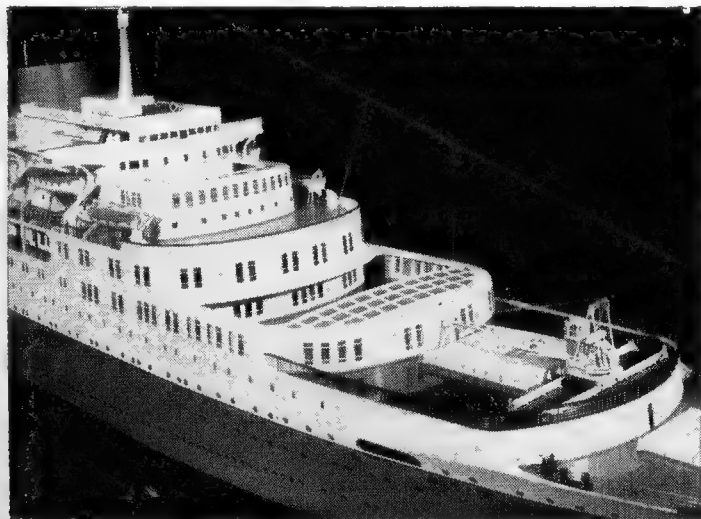
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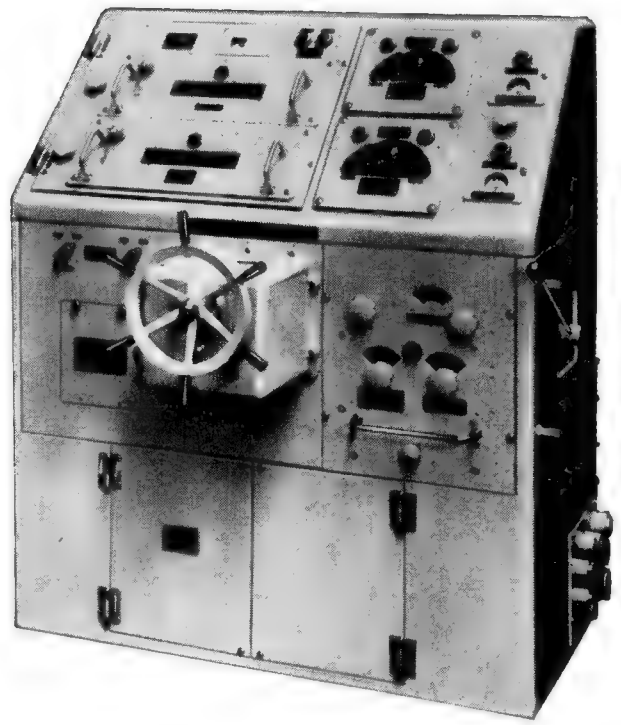


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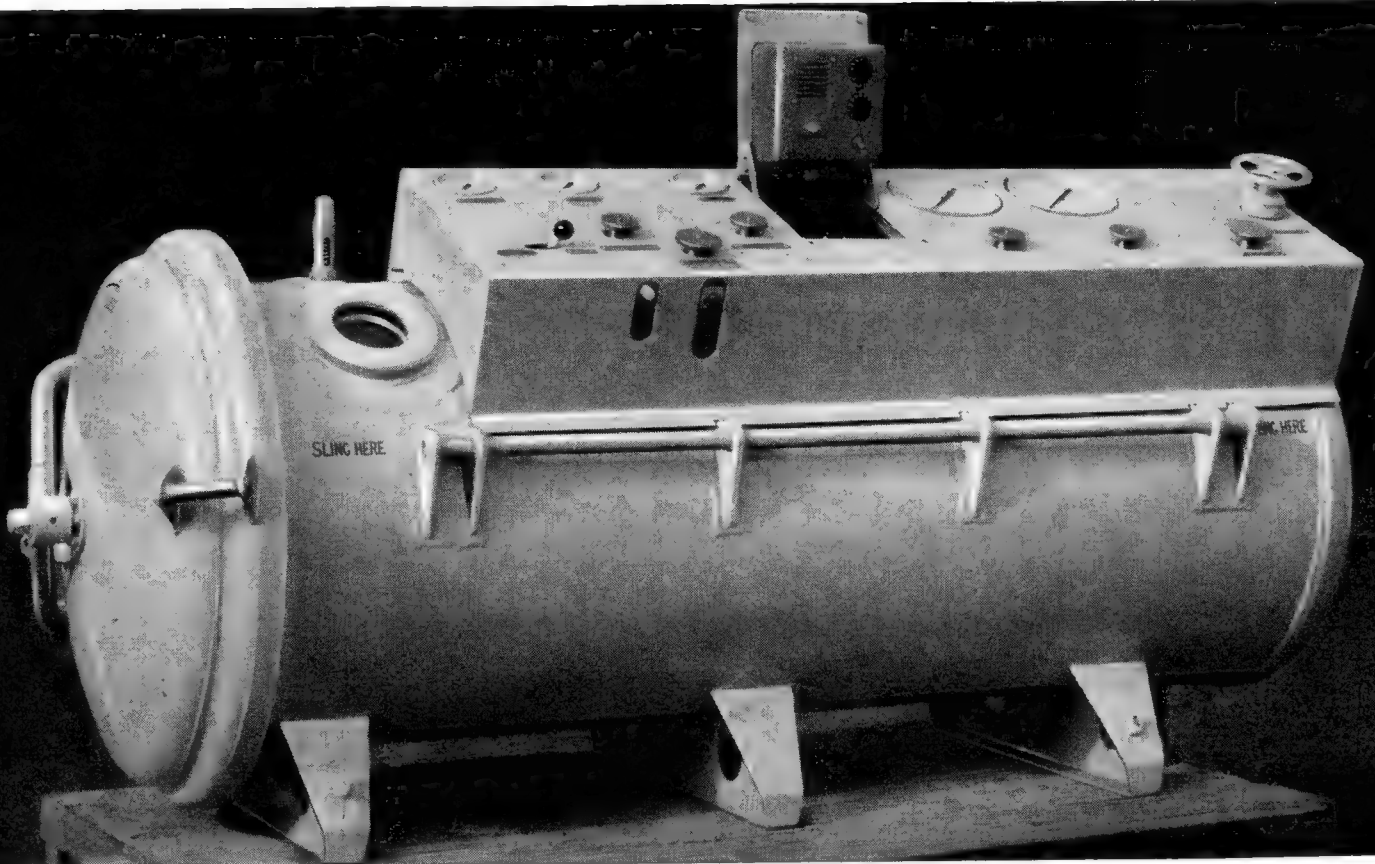
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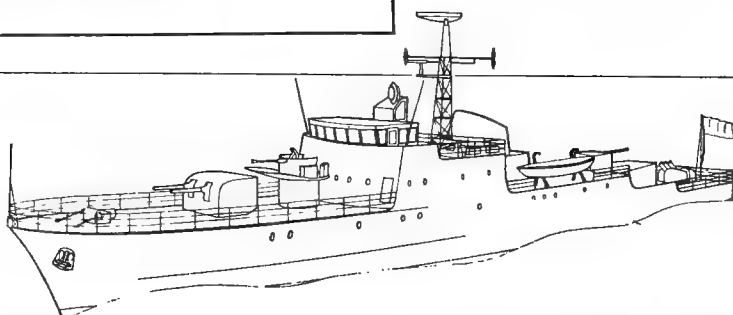
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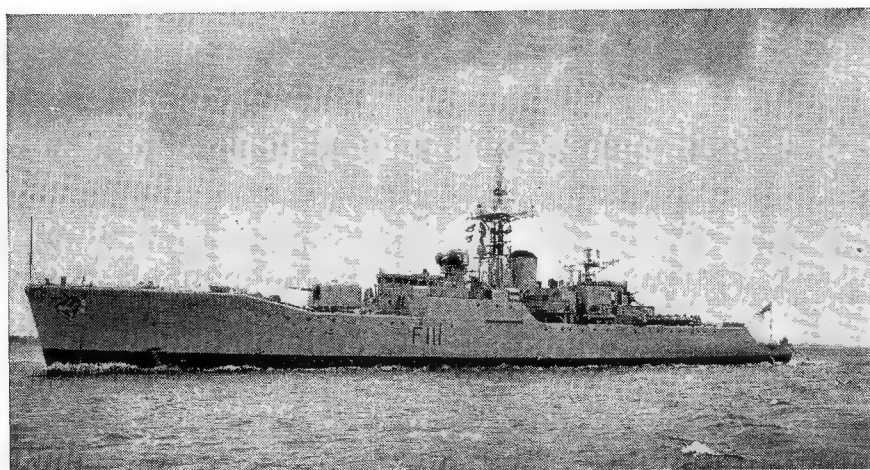
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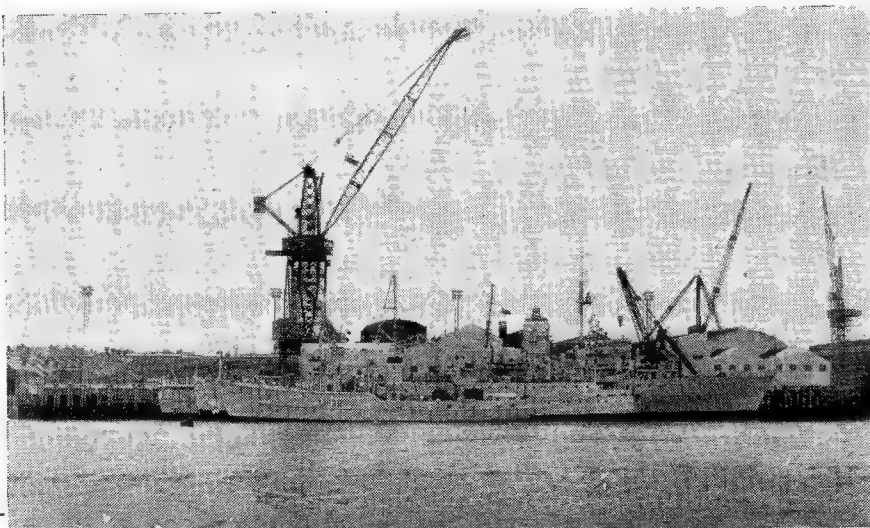
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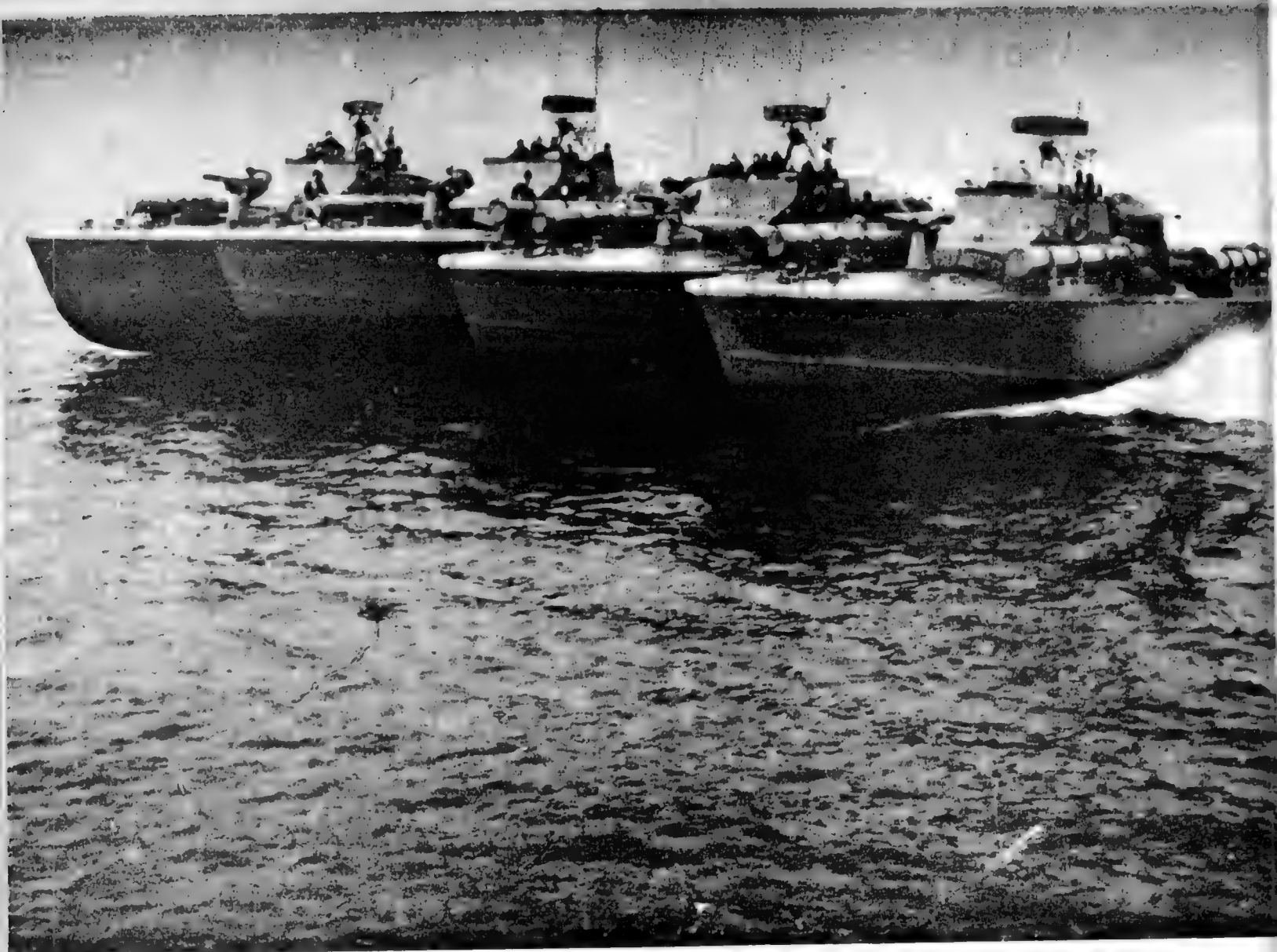
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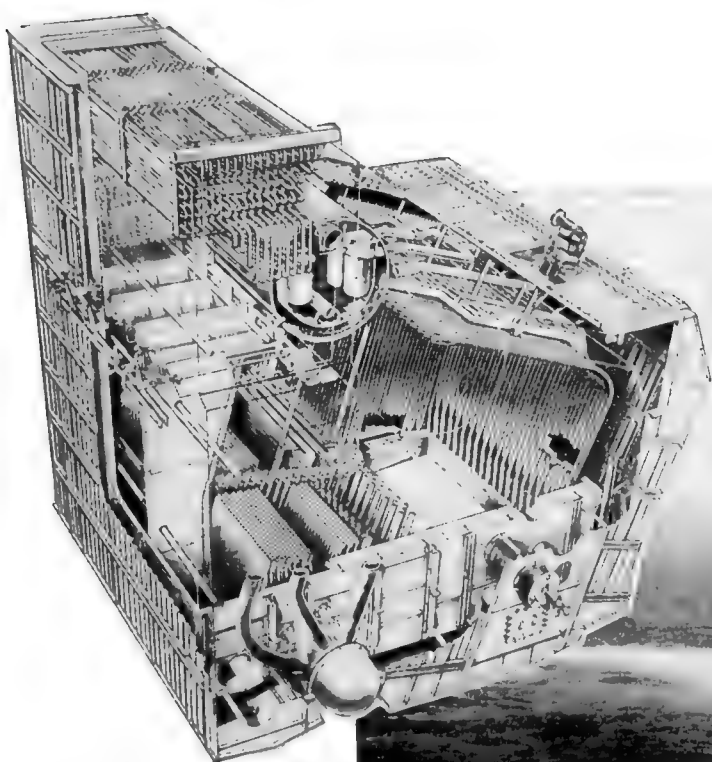


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Above: Cut-away view of a Babcock Selectable-Superheat naval boiler of the type supplied for all the Tribal class frigates and Devonshire class guided-missile destroyers.



H.M.S. Torquay, Whitby Class anti-submarine frigate. Babcock Selectable-Superheat boilers. (Official Admiralty photograph.)

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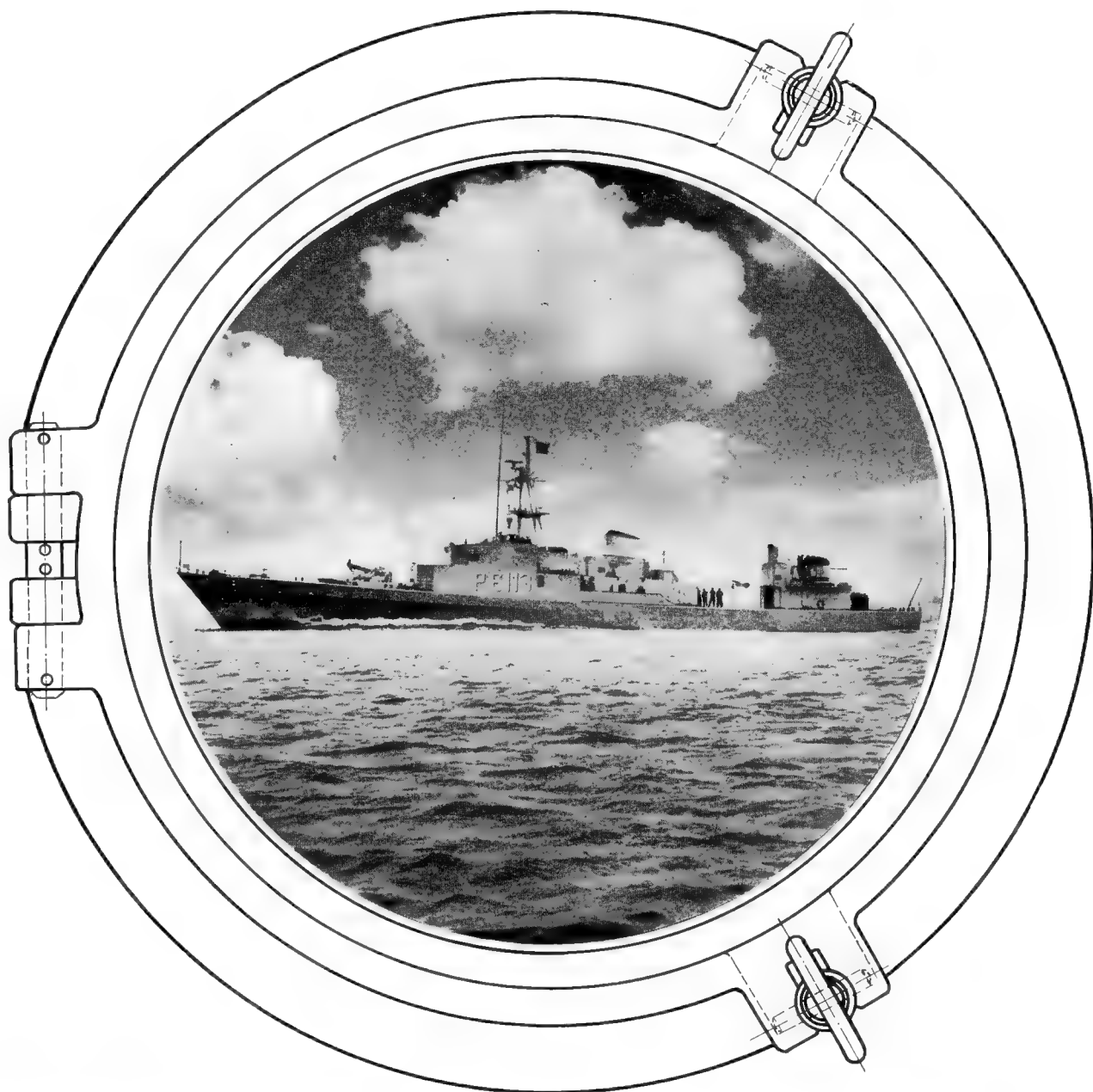
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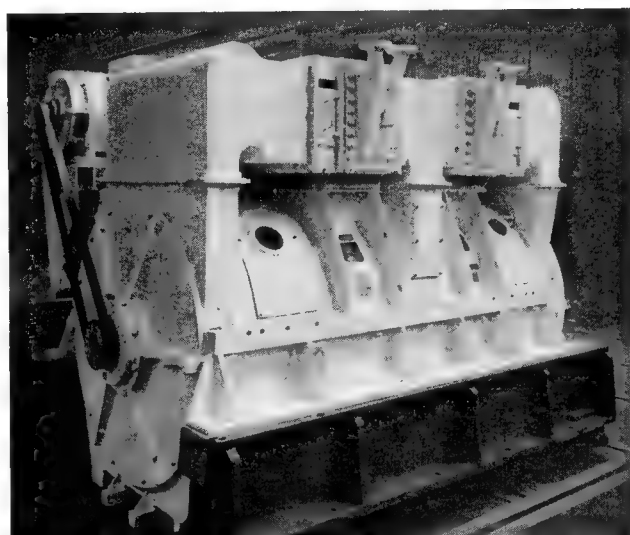
Three types of equipment made by L.S.E. are included in this illustration. (Crown copyright photograph, taken in one of H.M. Submarines).

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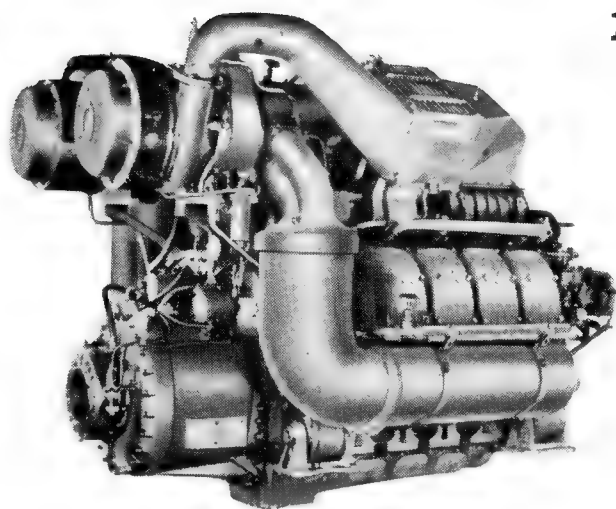
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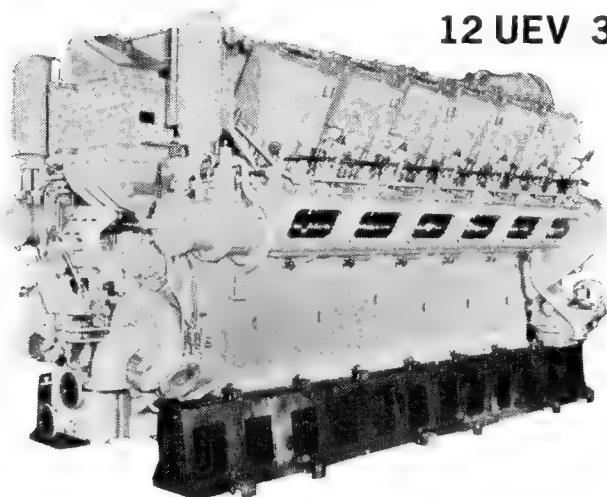
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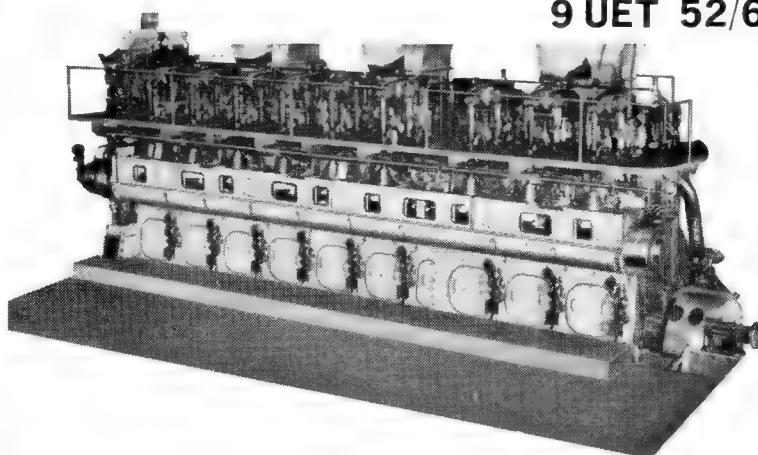
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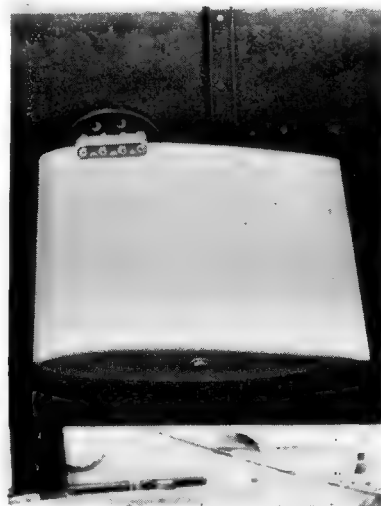
A "Leander" Class Frigate

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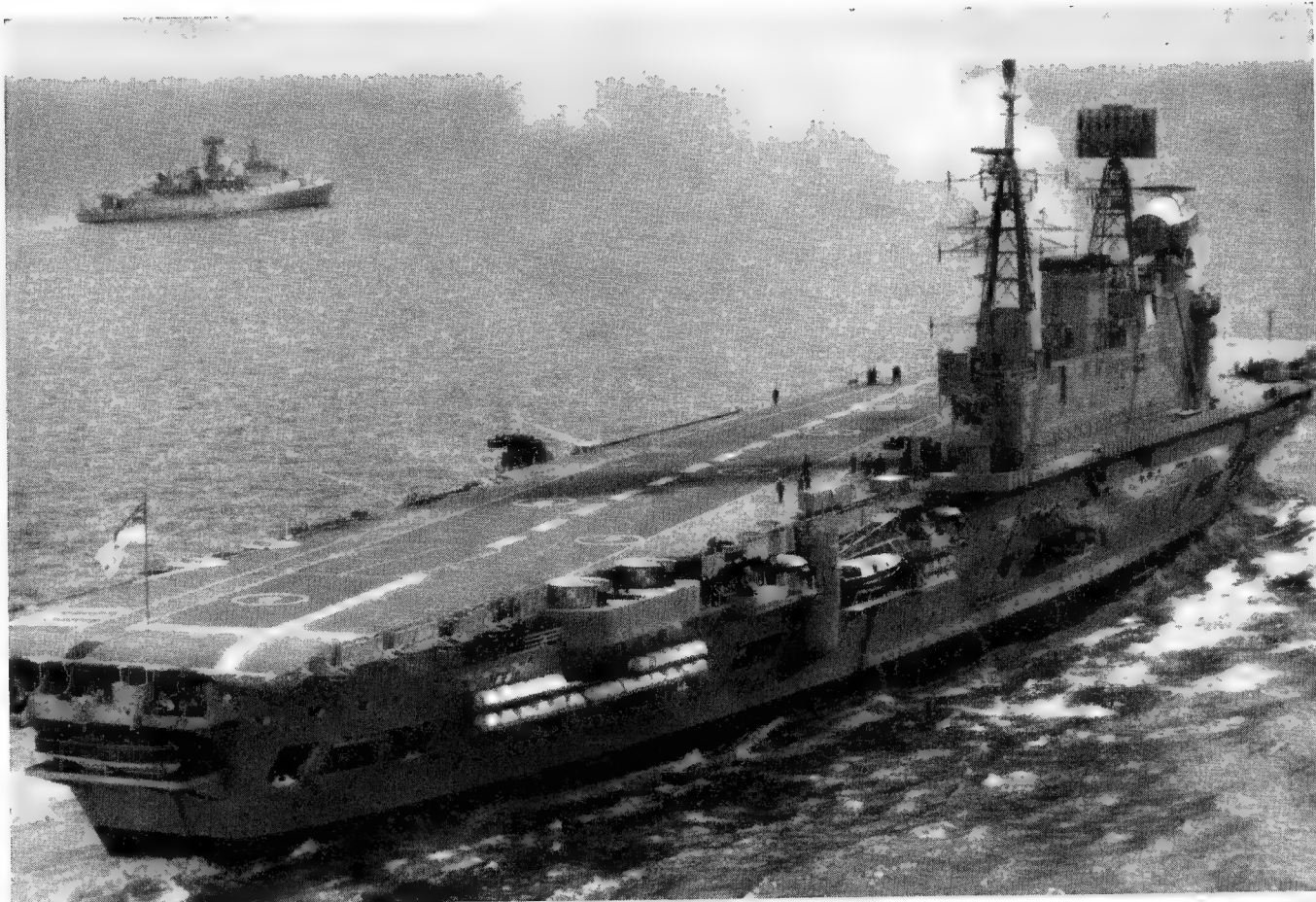
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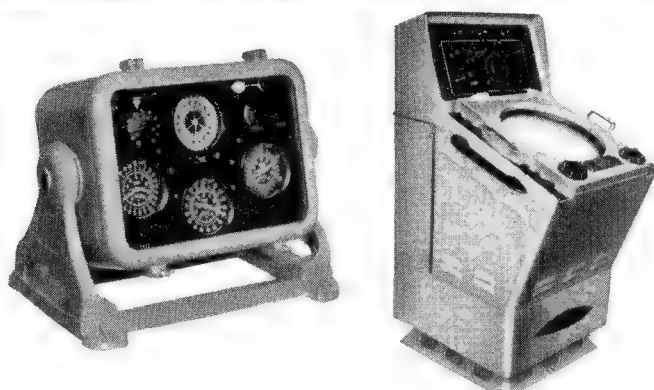
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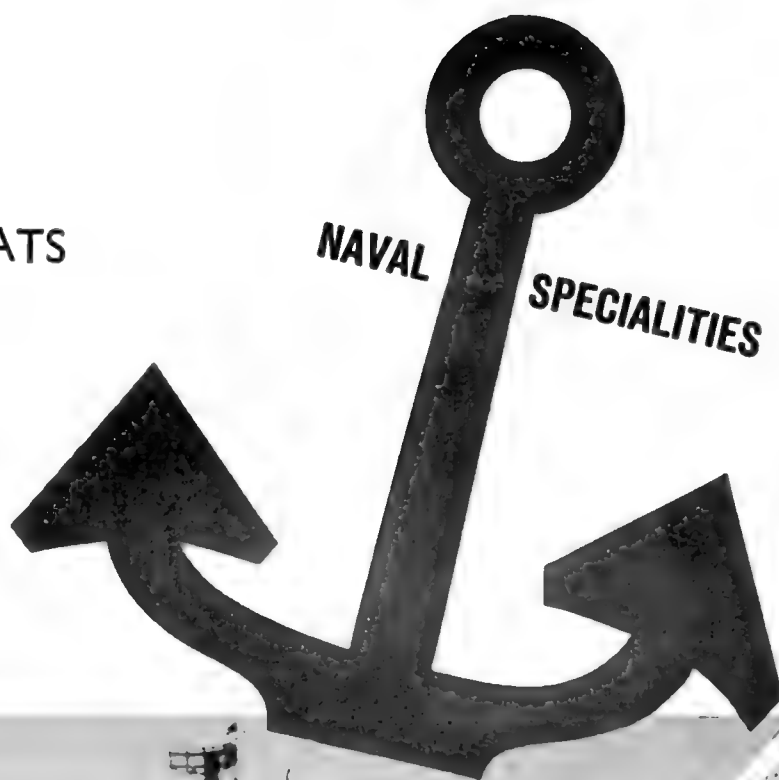
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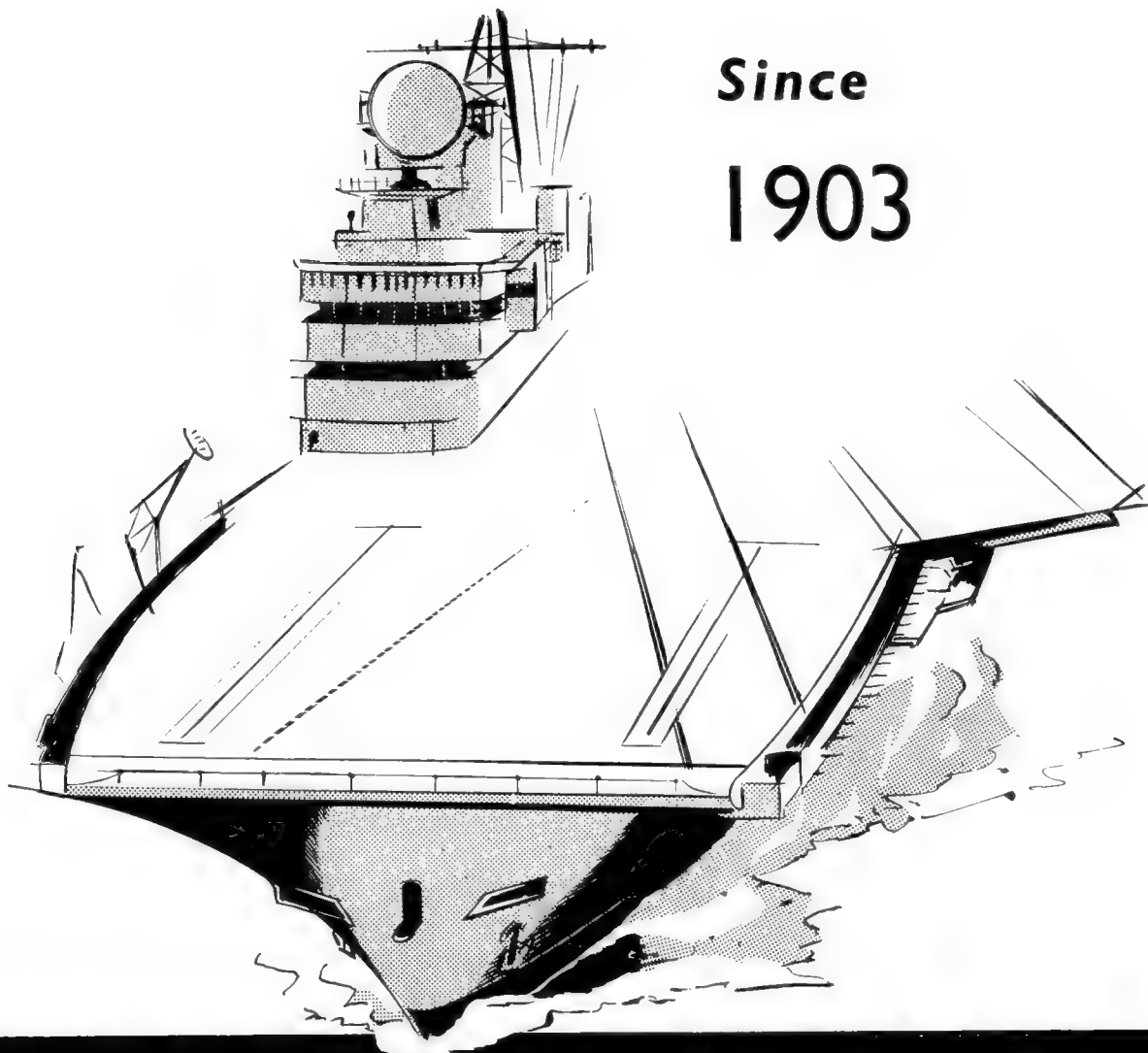
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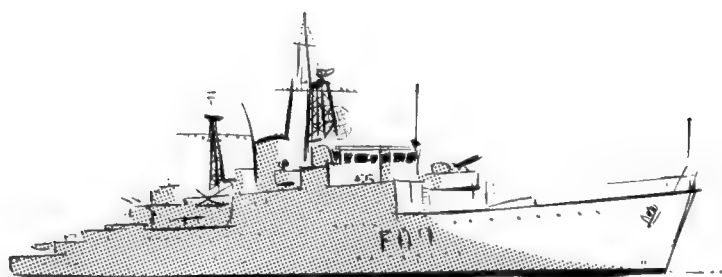
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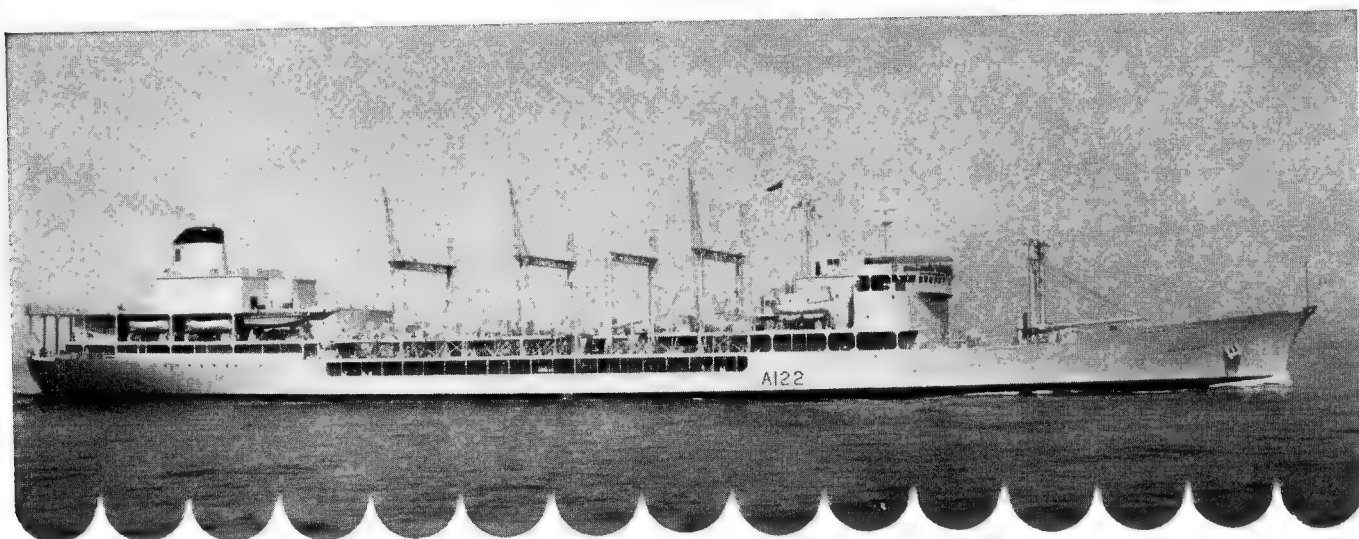
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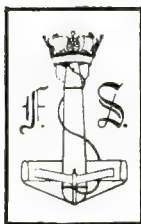
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1965, United States Navy, Official



H.M.S. TRIUMPH, escort maintenance ship (converted aircraft carrier) at Singapore with (from left) frigate Loch Killisport, fast anti-submarine frigate Zest, aircraft direction frigate Lincoln, and anti-submarine frigate Whitby alongside. Top left is aircraft carrier Eagle and above right is commando carrier Bulwark

1965, Royal Navy, Official



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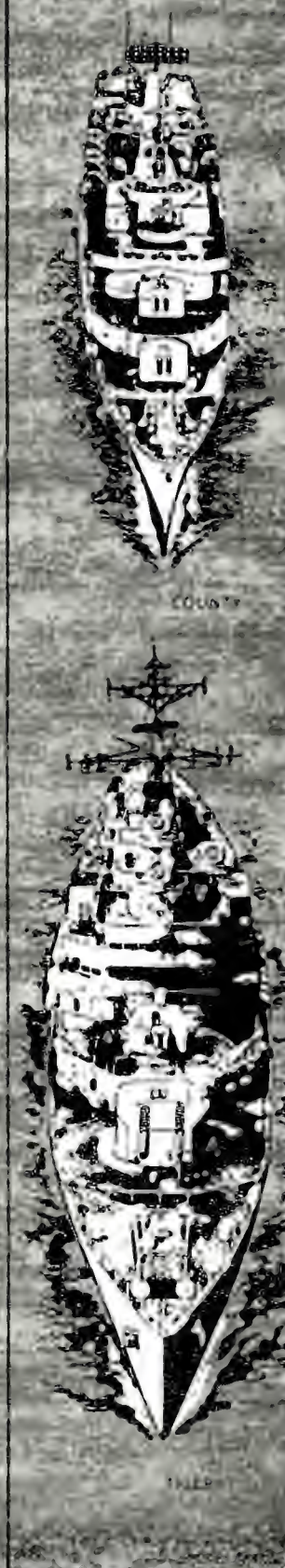
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FOREWORD

A great volume of new facts and figures and a large number of pictures have been added to this edition, the 68th year of issue of *Jane's Fighting Ships*.

Cognisant of the stark build-up, especially in the fields of nucleonics and rocketry, in the two great naval camps *vis-a-vis* each other in a continuous chain of dominance across the Northern Hemisphere, straddling the alternating land and sea masses of America, Atlantic, Asia and Pacific, particular attention is drawn to the two largest navies, those of the U.S.A. and the U.S.S.R.

Not only in these sections, however, but throughout the annual, the technical ship data, reference tables and specialised notes have been extensively revised and in many cases liberally amplified in the light of new information received, and to keep pace with the progressively changing naval scene. The amount of fresh material in this edition is considerably above the average.

Some 420 new illustrations, comprising 380 photographs and 40 drawings, have been added in this issue, giving the latest portraits of newly built warships, reconstructed vessels and converted units, and line representations to replace earlier plan and elevation drawings and silhouette sketches.

Altogether there are some 2,100 illustrations in the book, including over 1,700 photographs and nearly 400 scale drawings. Particulars are given of over 12,500 ships in the navies or sea defence forces of 96 countries. The strengths of the majority of these are summarised at the end of the book in a two-page spread table showing the number of warships of each category in each navy, facilitating easy comparison between the maritime countries of the world.

There has been a good response this year from correspondents east and west, and with the goodwill and co-operation of all except one or two of the 100 naval and coastguard authorities concerned there has been a steady flow of information and photographs to this annual, enabling the new edition to maintain the *Fighting Ships* tradition, established in 1897, of presenting a comprehensive panorama of all the world's fighting ships, together with their support ships and auxiliaries.

It is perhaps not generally appreciated what a large part the latter play in the viability of the larger navies or how many naval auxiliaries are ships of mercantile type converted for a specialised role. It will be seen from a perusal of the following pages that a large number of erstwhile merchant ships are now "on the strength" and constitute a large proportion of a military fleet's intrinsic worth.

The truly combatant warships, such as attack aircraft carriers, guided missile cruisers, destroyers, frigates and submarines, must, of course, be designed and built from the keel up for their highly specialised roles, but support ships and auxiliaries such as amphibious force flagships, destroyer headquarters ships, submarine parent ships, attack transports, attack cargo ships, mine countermeasures support ships, repair ships, missile range ships, technical and oceanographic research ships, survey ships, and fleet replenishment and supply ships of all categories can either be swiftly converted from existing merchant ships or built within standard mercantile hulls.

Thus in the major navies of the world there are now the military counterparts of commercial liners, bulk carriers and tankers used as naval transports, supply ships and oilers. This makes for simplicity of building practice and speed of construction, economy of materials, money and effort, and standardisation of equipment, and facilitates the operation of the ships by naval, auxiliary, mercantile or civil service crews.

This swift adaptability is particularly noticeable recently in the great American Navy for which mercantile type ships laid up in the National Defence Reserve Fleet under the Maritime Administration have been pulled out of the pool and converted for a variety of military, transport, experimental and auxiliary purposes; in the Soviet Navy which is using mercantile ships on an increasing scale for ancillary and test-bed purposes; and in the French Navy which has appropriated a number of mercantile ships for the ambitious Pacific Experimental Centre.

Nor is this mercantile hull reversion confined to auxiliaries and the fleet train. It has been applied to combatant ships

and scientific vessels. Reminiscent of the British light fleet aircraft carriers of the Second World War in which simplicity, ruggedness and austerity were the standards to reduce building times, and the hulls were constructed to Lloyd's rules, the present American amphibious assault ships were only turned out so swiftly because an aircraft carrier flat-top and island superstructure were superimposed on a standard mercantile hull.

Again, when the Hydrographer of the Royal Navy wanted swiftly to replace his ageing survey ships (modified war-built frigates) in little more than a year he decided to build them on commercial lines, and the same principle of merchant ship design has been adopted by the Hydrographer of the United States Navy in building up his new survey fleet.

Whenever a ship is required, behind the scenes as it were, for some experimental, scientific or research purpose in the wider application of sea power, in the long-term support of naval influence or strategy, or for some indirect but none-the-less necessary military operation at sea, it is increasingly becoming the custom to use an adapted merchant ship as the half-way house, the vehicle or the test-bed towards military fulfilment.

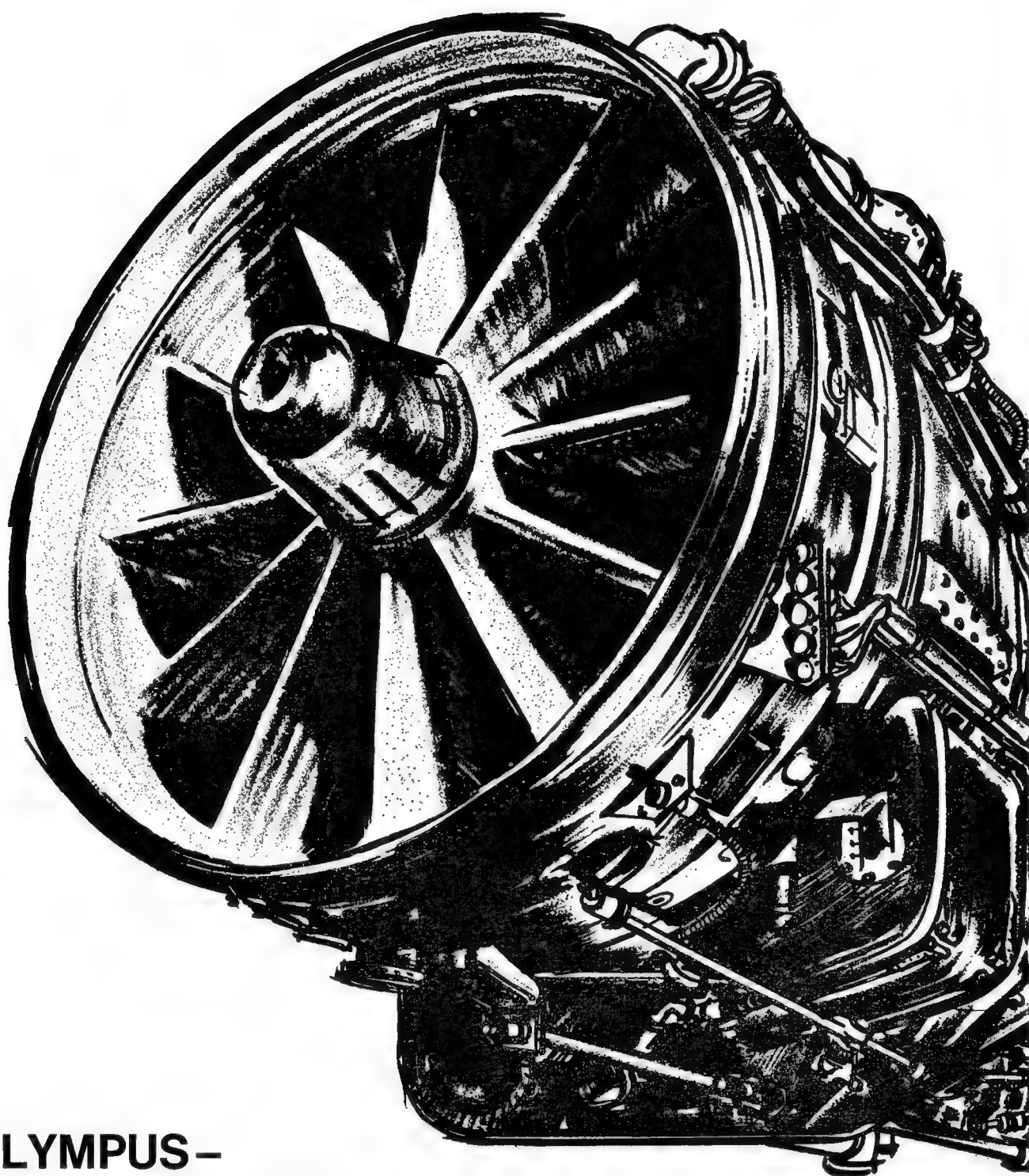
In short the combined thought of naval constructors and commercial naval architects, the resources of both naval dockyards and commercial builders, the scientific progress and technological know-how in both the military and civil worlds is being channelled into a pool of nautical science for the common weal to keep the fleets in being.

It might seem illogical at first sight for the erstwhile lumbering merchant ship to be taken into the realms of logistics and military science, but broad-in-the beam and wall-sided mercantile lines can be a decided advantage when volume and space are required to carry more ammunition, stores or fuel, to provide hangars, wells or docks for carrying helicopters, vehicles or landing craft, or to provide room for missile facilities and laboratories for experiments, volume and space which it might be hard to find in orthodox warships built on different lines for speed and manoeuvrability.

This employment of merchant ships or vessels built on mercantile lines for military purposes is not new: it obtained in wartime on a large scale. The only illogicality is that it should come to be necessary in peacetime.

But the world is not at peace. It is in a state of carefully controlled war. Surveying the world scene it is becoming increasingly obvious that unless the more mature and responsible nations, the nations long schooled in the rule of law, the nations in which democracy is in the natural order of things, the nations which have traditionally and for centuries used naval power to uphold the rule of law, especially the English speaking and European nations which have long traded over the seas, unless these nations maintain sufficient forces to preserve the *status quo* some of the proud but impatient emergent nations which have developed out of the former British, French and Netherlands empires may take the bit between their teeth and upset the very delicate balance of controlled war and turn it into devastating and wasting war. Even the fractious peace which is tolerated at present is better than a war drawing on nations' total manpower and resources.

For over a century, from the aftermath of Trafalgar until the advent of Jutland, the peace of the world largely depended on a single navy, the British Navy. But it is upon the principal navies in the plural that the peace of the world now depends. When Britain had the biggest navy in the world and could spread her navy evenly all over the world a large measure of rule by law, and law by rule, prevailed. But after fighting two world wars, the first largely alone for the first three years and the second largely alone for the first two years, it is no longer economically possible for Britain to police the world. The mantle of chief constable has fallen on the United States and it behoves all democratic nations to appreciate the vast and most effective navy that the U.S.A. has built up, more commensurate with her manpower and resources than before the two great wars, and which is being maintained (in the words of the U.S. Navy Department) as an "investment for the security of the United States and the free World".



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United States

The United States Navy is the largest and most advanced the world has ever seen. But it is a gentle giant. It must be a source of wonder to many a nation, especially to any aggressively inclined, why the United States, with such a colossal naval strength at its command, capable of landing any size of military force and mounting any size of air strike, has not bulldozed her way to the objective in Vietnam. The U.S. Navy is doubtless capable not only of containing any possible combination of Vietnamese forces arrayed against it but of countering any force that any co-belligerents might have available in that sphere. Yet the U.S.N. attack craft, surface, submarine or air, the amphibious ships, support vessels, transports and auxiliaries have shown the restraint necessary to channel down the operations to limited and conventional war.

It is a matter of gratification throughout the United States Navy that after an interval of years a second nuclear powered aircraft carrier appears to be in sight at last. A design contract worth nearly \$2 million for a new CVAN (nuclear powered attack aircraft carrier) has been awarded to the shipbuilding yard which built the first nuclear powered aircraft carrier *Enterprise* in 1958-61. This vessel, the world's largest aircraft carrier ever constructed, was provided for under the Fiscal Year 1958 New Construction Programme, and at the time it was the intention to build six nuclear powered attack aircraft carriers, laying them down at yearly intervals, to bring the number of attack aircraft carriers up to the U.S. Navy's operational requirements of a minimum of 15 large and modern vessels including the six new conventionally powered attack aircraft carriers of the "Forrestal" group and the three modernised conventionally powered aircraft carriers of the "Midway" class.

The U.S. Navy had studied 15 designs for a second nuclear powered aircraft carrier which would have been smaller and less expensive than *Enterprise*, but the Navy's request for construction funds was not granted and \$35,000,000 for long-lead items for the anticipated second nuclear powered aircraft carrier was taken out of the Fiscal Year 1959 budget. The ship was estimated to cost between \$200,000,000 and \$300,000,000 and to be smaller than *Enterprise*, the reduction in size being made possible by newly designed smaller nuclear reactors.

Since then two attack aircraft carriers heavier than the six of the "Forrestal" group and hardly less powerful than *Enterprise* have been authorised, namely *America* already completed and *John F. Kennedy* under construction, but both these are conventionally powered (although designed with guided missile launchers). The even rhythm of one new aircraft carrier per year was, however, interrupted.

But the U.S.N. Bureau of Ships has now awarded the cost-plus-fee contract to cover preparation of preliminary designs for the Navy's long awaited second nuclear powered aircraft carrier, and the experienced shipbuilding yard engaged on the project will make use of the technological advances both in nuclear propulsion and military science since the first and only nuclear powered aircraft carrier was designed nearly ten years ago. Doubtless the main difference, nuclear-wise, will be the employment of two reactors instead of the eight which were required in *Enterprise*. Funds for the new nuclear powered aircraft carrier are expected to be provided in the Fiscal Year 1967 New Construction Programme.

U.S. Navy chiefs can be expected to press for a new aircraft carrier per year, preferably nuclear powered, from now on, because the 24 "old faithfuls" of the "Essex" class, built in emergency during the Second World War, were launched between 1942 and 1945 and must inevitably, in turn, reach the end of their useful lives. Only a few remain as attack aircraft carriers, most of them having been reduced to support carriers, amphibious assault ships and auxiliary aircraft transports. Already one has been stricken and another converted into a floating electronics laboratory (a dumb ship, as after 18 years in reserve her propulsion machinery will not be activated).

More economical in maintenance, fuel and man-power than converted fixed-wing aircraft carriers of the "Essex" class, and more suitable for the specific role of helicopter carriers and commando ships are the five new amphibious

assault ships of the "Iwo Jima" class (a type which could with considerable advantage be built comparatively quickly and cheaply for the Royal Navy instead of converting bigger and more complex fixed-wing aircraft carriers into commando ships).

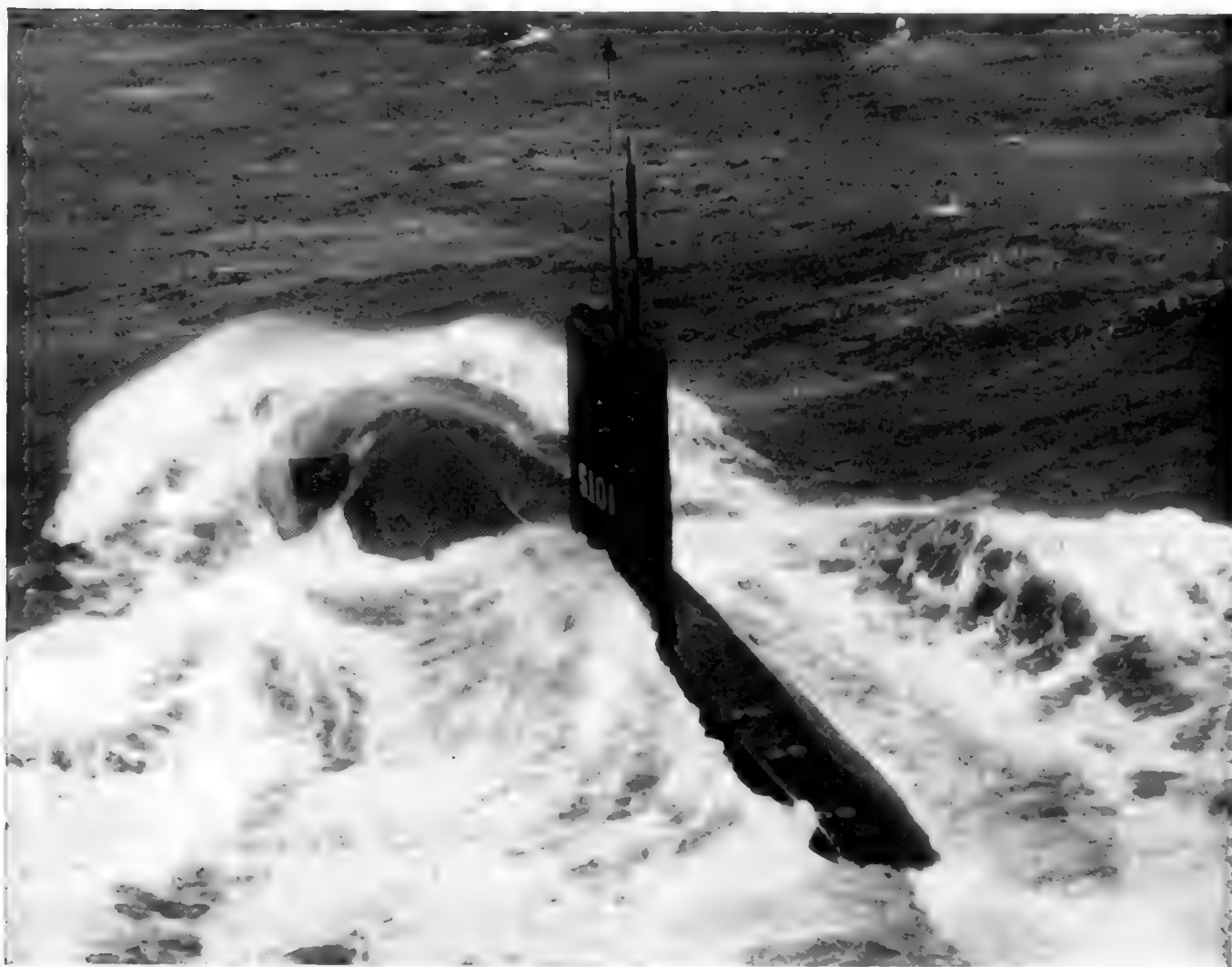
Nothing has ever come of various official and unofficial propositions to convert the four surviving listed battleships for some other use. *Iowa*, *Missouri*, *New Jersey* and *Wisconsin* were all decommissioned in 1955-58 and have been laid up ever since, but were retained in this annual for a few years after that pending a decision as to their future. Full particulars, photographs and drawings last appeared in the 1961-62 edition. Over the years it has been suggested that these four ships, survivors of a by-gone age, might be rearmored as ballistic missile monitors, partially converted to helicopter carriers, or reconstructed as fast combat support ships for replenishing other warships with stores and fuel. But the consensus of opinion now seems to be that as the United States has all the ballistic missile vehicles required (in the shape of nuclear powered submarines), has built new helicopter carriers (in the shape of amphibious assault ships) and has built new large vessels specifically designed as fast combat support ships, the conversion of battleships is no longer tenable. Moreover the four surviving battleships were built during 1940-44, have been laid up for a decade, would cost a mint of money to reconstruct, convert and rehabilitate up to current operational standards, and even when modernised would be expensive in material maintenance, a drain on skilled personnel to crew them up to full complement, and prodigal on fuel to keep them in active commission. Even then there would be other categories of warships, smaller and more economical in man-power, better qualified to perform any tasks found for them, cheaper to run and less vulnerable *in toto* to modern surface, air or underwater weapons. All the other major naval powers which had battleships after the Second World War have long since condemned them as outmoded and scrapped them outright (except France which keeps two as accommodation hulks) and only in the United States does the ultimate dreadnought linger on. Quite apart from the combination of national pride and traditional caution in the U.S.A. which has engendered the retention of listed battleships, there is a healthy trend to preserve as historical relics and museum pieces battleships stricken from the Navy List several years ago. The latest is *Massachusetts* (launched in 1941 and stricken in 1962) which has joined the "fleet" of State Battleship Memorials. Others are *Alabama* (launched in 1942 and stricken in 1962), *North Carolina* (launched in 1940 and stricken in 1960), and *Texas* (launched in 1912 and stricken in 1946).

Since the battleships have been withdrawn from active service they have been replaced in the fleet by guided missile cruisers. *Long Beach* is the only ship designed and constructed from the keel up as a cruiser for the United States since the end of the Second World War (the first surface ship armed with a main armament of guided missiles, and the first nuclear powered surface fighting ship in the world), but with the completion of the conversion of *Chicago* the U.S. Navy now has eleven more guided missile cruisers, all converted from war-built orthodox cruisers, comprising three of the "Albany" class, two of the "Boston" class and six of the "Galveston" class.

Hardly less valuable are the nuclear powered guided missile armed destroyer leaders or frigates *Bainbridge* and *Truxtun*, as big as light cruisers, the largest in a recent series of guided missile frigates, the 28 others being conventionally powered, comprising nine of the "Belknap" class, nine of the "Leahy" class and ten of the "Coontz" class. And contemporary with the latter are 23 guided missile armed destroyers of the "Charles F. Adams" class. Four post-war DLs and 18 post-war DDs are scheduled to be converted into guided missile armed destroyers. Quite new in concept and exciting in design are the new guided missile escort ships, the first "small" ships of the destroyer escort type ever designed to carry guided missiles. But they are turning out larger than the destroyers and frigates in other navies.

According to the revised schedule the U.S. Navy will by 1970 have a fleet of 100 nuclear powered submarines

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EMU 3A

FOREWORD—continued

including 41 armed with Polaris ballistic missiles. The latter will consist mainly of one type, the 31 vessels of the "Lafayette" class. And the majority of the attack or hunter-killer submarines will be of one type, comprising the 42 vessels of the "Thresher" group. This homogeneity is an important factor, not only facilitating economy and speed of production but making for standardisation of materials, equipment, maintenance and training, and therefore efficiency of operation.

Of particular value as assault ships are the new amphibious transports, dock, which run to 16 units built, building or projected. These all-purpose ships, as big as cruisers, carrying helicopters, landing craft, tanks, troops and cargo, incorporating both a flight deck and a dock, armed with a battery of anti-aircraft guns, and propelled by steam turbines at a moderately high speed, are capable of operating independently like cruisers (and named after cities like cruisers) and it is significant that while orthodox cruisers are being phased out these new amphibious ships are in series production.

Among the over 100 photographs added in the United States section are those of the new attack aircraft carrier *America*, the newly converted guided missile cruiser *Chicago*, the new large guided missile frigates *Belknap* and *Gridley*, the new anti-submarine escort ship *Edward McDonnell*, the newly converted guided missile ship *Norton Sound*, the new amphibious transport dock *La Salle*, the new nuclear powered fleet ballistic missile submarine *Andrew Jackson*, the new nuclear powered hunter killer submarine *Tinosa*, and the new parent ship for Polaris submarines, *Simon Lake*.

U.S.S.R.

A country's naval might is expressed not only in terms of her fighting ships, not only in terms of support ships and auxiliaries, not only in terms of the maritime application of the military arts derived from the march of science and technological progress, but in terms of her mercantile marine which offers such a vast potential for the rapid expansion of her martial navy in emergency or wartime.

An indication of Soviet aspirations towards global maritime control, and expanding interest in the wider aspects of the sea affair in general, is given by the rapidly increasing Soviet mercantile marine which has grown from 1,000 ships aggregating 2,300,000 tons ten years ago to 1,700 ships aggregating 7,000,000 tons gross today. There is no doubt that the U.S.S.R. regards her merchant shipping fleet not only as an essential element of the national economy at all times but as a vital fourth arm of defence in emergencies. Moreover the Soviet Navy draws freely from the mercantile pool whenever it is in the interests of the fighting services, either absorbing merchant ships as naval auxiliaries or building naval vessels on mercantile lines.

It is not only the growth of Soviet merchant shipping which is of some concern to the principal maritime powers. The chiefs of the NATO, SEATO and CENTO organisations are tending to think not specifically about the Soviet naval forces proper but broadly about all the U.S.S.R.'s sea vehicles: the surface combatant ships, the submarine fleet, the merchant fleet, the surveying fleet, the fishing fleet, the research ships, and those very numerous ubiquitous trawlers which seem to appear on every trade route and on every scene of naval activity. So much so that "Soviet Navy" is becoming a term applied to the Soviet's world-wide distribution of ships of all kinds. This distribution is undoubtedly a challenge for naval and mercantile supremacy at sea.

The Soviet Navy evidently has generous funds at its disposal, for new warships are not confined to orthodox or elementary types nor are they apparently limited in numbers. Soviet naval architects have recently produced some quite remarkable and exciting designs, and experimentation is obviously to the fore, showing that treasury support is not lacking.

Each year now the Soviet Navy seems to turn out prototypes and forerunners of new classes of warships in the main attack and escort categories. This is particularly evident in the new representatives of guided missiles armed destroyers, anti-submarine frigates, nuclear powered submarines, specialised high speed craft, and support ships.

The Soviet Navy is now estimated to comprise 22 cruisers, 150 destroyers, 35 nuclear powered submarines, 390 con-

ventionally powered submarines, 100 frigates, 700 minesweepers, 250 escort and patrol vessels, 350 motor torpedo boats, 550 motor gunboats, 130 landing craft, 300 auxiliaries and 200 service craft.

There has been a particularly good flow of Soviet naval information and photographs this year and many new figures and revised data have been embodied in the pages.

Among the 25 new photographs added in the Soviet section are those of the guided missile cruiser *Dzerzhinski*, guided missile armed destroyers of the "Kynda" and "Krupnyi" classes, an anti-submarine frigate of the "Petya" class, a nuclear powered submarine of the "N" class, a coastal minesweeper of the "Sasha" class, and guided missile patrol boats of the "Komar" class.

United Kingdom

As might be expected, 20 years after the Second World War, the Royal Navy stands at its post-war best, having settled down to the overall size, individual categories and technical efficiency required to meet its home, treaty and overseas commitments commensurate with the national economy and skilled man-power.

In naval construction the accent is on frigates, a particularly fine type having been developed for series production. But four more guided missile armed "destroyers" (light cruiser size) are being built, the nuclear-powered submarine building programme is being energetically pursued, and two assault ships are being completed.

But the big question in the Royal Navy is whether Britain is to have a new generation of aircraft carriers. So far the construction of even one new aircraft carrier seems rather remote, and what with the political uncertainty, vacillation over inviting tenders for building, and escalating sums conjectured as to the cost, naval officers are inclined to express serious qualms about ever having a new aircraft carrier at all.

It is not generally realised that no new aircraft carriers have been laid down in the United Kingdom for twenty years, that is since the end of the Second World War. It is now nearly eight years since it was officially given out that the Royal Navy would require a new aircraft carrier in operation by 1970. It is nearly seven years since the then First Sea Lord said that plans of the new aircraft carrier were in the early design stages. Soon afterwards Admiralty spokesmen were talking in the plural about a new generation of aircraft carriers. Nearly four years ago the then First Lord of the Admiralty said that design work for the new aircraft carrier had been put in hand. Nearly two years ago the then Minister of Defence announced that official approval had been given for the construction of a new aircraft carrier of approximately 50,000 tons displacement and referred to the new aircraft carrier joining the Fleet by the early 1970s. Nearly a year ago it was officially announced that tenders for the construction of the new aircraft carrier would be invited in mid-1966. But throughout 1965 a new Minister of Defence has repeatedly stated that the whole question of the requirements of the three fighting services is under review to keep the total cost below an arbitrary target figure. It is difficult to see how an aircraft carrier can be provided for without exceeding this optimum sum or sacrificing some other essential element of defence.

Britain's defence priorities are crystal clear and absolutely imperative to all except those of parsimonious or misdirected bent or in permanent blinkers. These priorities are new aircraft carriers, more frigates, and a steady replacement of our old conventionally powered submarines by nuclear-powered hunter-killer submarines.

Without new aircraft carriers the Fleet Air Arm will die and with it Britain's brush-fire control abroad, Britain's power East of Suez, and Britain's voice in world counsels.

Without more frigates Britain itself will die in wartime, for the number of frigates to counter the potential submarine menace is entirely inadequate to protect the trade routes on which ply the Commonwealth navies totalling 7,300 ships aggregating 27,545,000 tons gross.

Without nuclear powered submarines the Navy itself will die. Any navy shorn of its air power and denied world wide distribution of frigates would have to depend on the true submarine's permanent cloak of invisibility which a nuclear powered submarine has but a diesel-

FOREWORD—continued

powered submarine has not, being merely a submersible torpedo boat.

Without new aircraft carriers, without an adequate number of frigates, without nuclear powered submarines the Royal Navy would soon cease to exist except as a minor force suitable only for showing the flag, local police duties and fishery protection. It could certainly not play an effective role as an instrument of foreign policy, nor could it meet world-wide commitments or protect long-haul trade or overseas interests.

The prospect for the Royal Navy in the 1970s, if no new aircraft carriers materialise, is all the more bleak when the indefensible position of the few surviving British overseas bases is considered. Trincomalee has gone, Malta has been written off, Gibraltar is vulnerable to both air attack and foreign nationalism, Simonstown could deny access, Aden is insecure, Singapore is suspect after secession, and Hong Kong is only tenable by the grace of the mainland giant.

Without these traditional bases the Royal Navy obviously requires "alternative accommodation" if it is to continue to fulfil its allotted tasks; especially in the Far East.

It could convert virgin islands into naval bases on which none but military personnel were allowed. This would obviate an eventual political take-over bid by an indigenous population in the hinterland or imported labour domiciled locally to serve the base.

It could assemble enough aircraft carriers, commando ships, repair ships and dock ships to collectively constitute a floating base and render a shore base unnecessary.

It could, on the principle of if you cannot have a port then take a port with you, build the modern equivalent of Mulberry artificial harbours.

Or it could build a squadron of super amphibious dock transports, much bigger than *Fearless* and *Intrepid*, in which ships up to frigate size could be docked, from the decks of which aircraft could be flown off, in which repair and maintenance facilities could be installed, and from which stores and fuel could be supplied to small craft. In effect floating dockyards and airstrips.

The British Commonwealth cannot continue to depend on the U.S.A. without its own contribution to its own and world security, lest it find itself bereft of active U.S. support as it was at the beginning of both world wars. British naval forces must be maintained at a level sufficient to form the nucleus of a navy ready to defend both the homeland and its world-wide commitments.

Britain must have a new generation of aircraft carriers, a sufficient number of mobile bases to replace the land bases which are fast disappearing or threatened with extinction, and a large number of frigates, many more than at present.

In global, rather than continental, naval strategy Britain's position would be untenable without aircraft carriers as her presence and defence effort east of Suez can no longer depend on the availability of airfields, which is becoming increasingly problematical, nor on overflying rights, which can no longer be depended on.

France

A considerable proportion of the French naval effort is being concentrated on the establishment of a special fleet of new or converted warships in support of the Pacific Experimental Station, and there is no doubt that the nuclear element of the French fleet will progressively increase.

Italy

Interesting warship designs continue to come off the drawing boards in Italian shipyards, particularly in the guided missile and escort categories, and attention is being given to the build up of a mosquito flotilla of hybrid motor torpedo/gunboats.

Germany

The Federal German Navy is establishing firm foundations as a European naval power under the aegis of the United States. The Bundesmarine's first guided missile destroyers are being built in the U.S.A. The U-boat flotilla continues to grow.

Japan

Largely due to the sheer enthusiasm of her own momentum Japan is fast becoming the United Kingdom of the Far

East. With a massive shipbuilding effort, both naval and mercantile, devoid of strikes or demarcation disputes, Japan is making a quite remarkable maritime resurgence.

Fighting Ships is much indebted to the Naval Boards, Navy Departments and Ministries of Maritime and Defence who furnished information and photographs. This was facilitated by the kindness of the Ambassadors and Naval Attaches in London, including: Rear-Admiral M. A. Noel, French Navy; Rear-Admiral H. Vasquez Lapeyre, Peruvian Navy; Rear-Admiral J. W. O'Grady, United States Navy; Major-General M. Utsunomiya, Japanese Embassy; Brigadier-General M. Goren, Israeli Embassy; Brigadier J. P. Verster, S.M., S.A.A.F., South African Embassy; Captain R. R. Giavedoni, Argentine Navy; Captain A. A. de Malafaia, Brazilian Navy; Captain P. Carvajal, Chilean Navy; Captain J. E. T. Helenius, Finnish Navy; Captain E. G. Kray, Federal German Navy; Captain S. Mourikis, Royal Hellenic Navy; Captain V. Patrelli Campagnano, Italian Navy; Captain H. A. van Oorde, Royal Netherlands Navy; Captain J. R. Gonzalez, Spanish Navy; Captain B. A. G. Hedlund, Royal Swedish Navy; Captain P. Choon-Ngarm, Royal Thai Navy; Captain K. Sevindik, Turkish Navy; Colonel J. F. Biot, Belgian Embassy; Colonel J. B. Kim, Korean Embassy; Colonel O. T. Mehn-Andersen, Royal Norwegian Embassy; Colonel M. Roman, Polish Embassy; Commander L. A. G. Cardoso, Portuguese Navy and Lt. Colonel E. B. Meincke, Danish Embassy.

Grateful acknowledgement is made of the kind co-operation of Captain B. D. O. MacIntyre, D.S.C., and Bar, R.N., Director of Public Relations (Naval), Ministry of Defence, London; Captain F. M. Lloyd, U.S.N., Public Information Officer for the Commander-in-chief, United States Naval Forces, Europe;

Commodore J. M. Ramsay, D.S.C., R.A.N., Australian Naval Representative, London; Commodore F. B. Caldwell, C.D., R.C.N., Naval Member, Canadian Joint Staff, London; Commodore M. K. Heble, I.N., Indian Naval Adviser, London; Commodore M. M. Hussain, P.N., Pakistan Naval Adviser, London; Captain S. F. Mercer, R.N.Z.N., Senior Royal New Zealand Naval Liaison Officer, London; Rear-Admiral W. P. Mack, U.S.N., Chief of Information, Department of the Navy, Washington, D.C.; Dr. Gordon W. Stead, D.S.C., B.Com., B.A., LL.D., C.I.Mar.E., Assistant Deputy Minister, Marine, Department of Transport, Ottawa;

M. Henri le Masson, Editor of "Flottes de Combat"; Herr Alexander Bredt, Editor of "Weyers Flottentaschenbuch"; Vice-Admiral Vittorio Prato, Editor of "Rivista Marittima"; Captain Allan Kull, Editor of "Marinkalender"; Lieut-Commander H. M. Colter, R.C.N., Editor of "The Crowsnest"; Mr. Theodore N. Maher, Editor of "Our Navy";

Dr. Luigi Accorsi; Rear-Admiral M. J. Adam, C.V.O., C.B.E.; Professor Alfredo Aguilera; Dr. Giorgio Arra; Dr. Ian L. Buxton; Mr. William H. Davis; Captain Aldo Fraccaroli; Dr. Giorgio Giorgerini; Mr. Hajime Fukaya; Constructor Lt.-Commander Shizuo Fukui; Mr. A. W. Grazebrook; Commander Alvin H. Grobmeier; Dr. Erich Gröner; Mr. A. Hague; Mr. Martin E. Holbrook; Mr. Michael D. J. Lennon; Captain T. D. Manning, C.B.E., V.R.D., R.N.V.R.; Ing. Augusto Nani; Mr. C. W. E. Richardson; Captain Aluino Martins da Silva; Captain R. Steen Steensen, R.D.N.; Herr Stefan Terzibaschitsch; Mr. Frank Uhlig, Jr.; Mr. Godfrey H. Walker; Mr. Richard H. Webber; and many others who prefer to remain anonymous.

The editor and publishers deeply regret to record the death of Dr. Erich Gröner, the celebrated German naval historian and archivist, friend of the editor and correspondent of *Fighting Ships* over the last sixteen years.

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Photographs or information for the next edition, the preparation of which starts immediately, should be sent as soon as possible to The Editor, "Jane's Fighting Ships", care of Sampson Low, Marston & Co., Potter Row, Great Missenden, Bucks, England.

Raymond V. B. Blackman.

ALBANIA

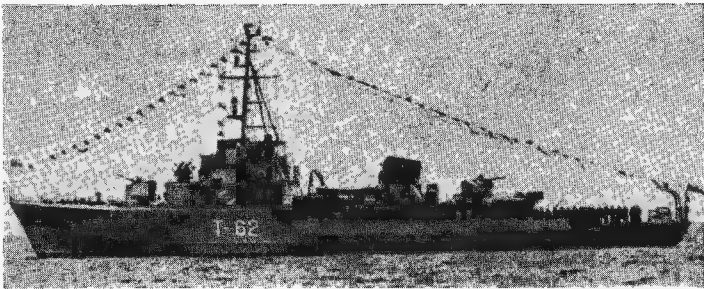
Personnel

1965: 3,000 officers and men. 1964: 2,020 officers and men.

Submarines

Three "W" class submarines are reported transferred from U.S.S.R..

FLEET MINESWEEPERS



"T 43" Class

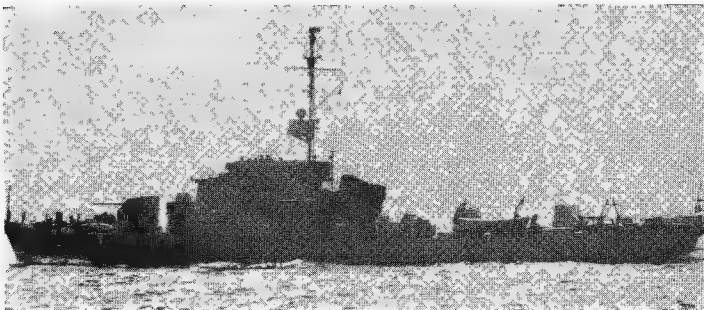
2 "T 43" Class

Ex-U.S.S.R.

Displacement: 470 tons standard (580 tons full load)
Dimensions: 200×27½×9 feet
Guns: 4—37 mm. AA., 8—13 mm. M.G. AA.
Machinery: Diesel motors, 2 shafts. Speed=17 kts.

General "T 43" class minesweepers reported to have been acquired from the U.S.S.R. in 1960.

PATROL VESSELS



"KRONSTADT" Class

Ex-U.S.S.R.

4 Ex-U.S.S.R. "Kronstadt" Class

191 Displacement: 192 300 tons standard (350 tons full load) 504
Dimensions: 167½×19½×9 feet
Guns: 1—3·9 inch, 2—37 mm. AA., 3—20 mm. AA.
A/S weapons: Depth bomb projectors
Mines: Fitted for laying
Machinery: Diesels, 2 shafts=27 kts.
Oil fuel: 20 tons
Complement: 40

General "Kronstadt" class submarine chasers. Four were transferred in 1958, but two of these were exchanged for newer versions in 1960.

MOTOR TORPEDO BOATS



"P-A" Class

Ex-U.S.S.R.

6 Ex-U.S.S.R. "P-A" Class

Displacement: 50 tons
Dimensions: 85½×20×6 feet
Guns: 4—25 mm. AA. M.G.
Machinery: Diesel engines, B.H.P.: 2,000=42 kts.

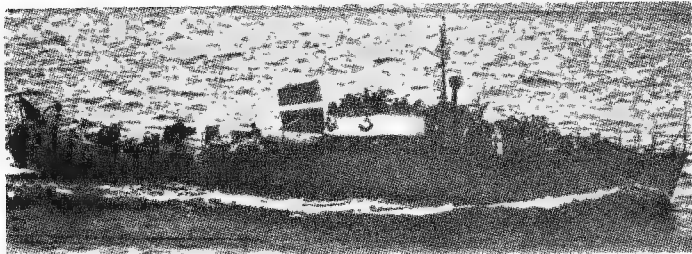
General Soviet built "P-A" class fast patrol boats acquired in 1955. It is reported that there are 14 motor torpedo boats in the Albanian Navy comprising six Soviet P-A class, five ex-Soviet (U.S.A.-built) 70 ft. Vosper class, acquired in 1950, and three ex-Italian "MAS 501 class acquired in 1947.

DEGAUSSING SHIP

Dimensions: 134×40×14 (max.) feet

General Reported to have been transferred from the U.S.S.R. Built in Finland in 1956.

INSHORE MINESWEEPERS



"T 301" Class

6 Ex-U.S.S.R. "T 301" Class

Displacement: 130 tons standard (180 tons full load)
Dimensions: 100×16×4½ feet
Guns: 2—37 mm. AA., 2—25 mm. AA.
Machinery: Diesel, 2 shafts, B.H.P.: 480=10 kts.
Complement: 30

General "T 301" class inshore minesweepers acquired from U.S.S.R. in 1957-60. Another photograph of "T 301" class appears in the 1962-63 edition.

Ex-PASMAN (ex-Mosor)

Ex-UGLIANO (ex-Marjan)

Displacement: 125 tons standard (130 tons full load)
Dimensions: 98½×26½×5½ feet
Guns: 1—47 mm.
Machinery: Triple expansion, 2 shafts, I.H.P.: 280=9 kts.
Complement: 30

General Former Yugoslavian mining tenders and inshore minesweepers launched in 1931 at Yarrow's Adriatic Yard, Kraljevice. Later used as small minelayers, but their continued existence in this role is now doubtful. A photograph of ex-Ugliano (ex-Marjan) appears in the 1962-63 edition.

MINESWEEPING BOATS

3 Ex-U.S.S.R. "KM 4" Class

Displacement: 20 tons
Guns: 2—13 mm. AA. M.G.
Machinery: Speed=32 kts.

General In addition to the above there are reported to be 16 small patrol craft for coastal duties.

DEPOT SHIP

Displacement: 3,500 tons standard
Measurement: 3,258 tons gross, 4,500 tons deadweight
Dimensions: 336×47×19 (max.) feet
Machinery: Triple expansion steam, I.H.P.: 2,450=13 kts.

General "Atrek" class submarine tender reported to have been transferred from U.S.S.R. in 1961.

OILER

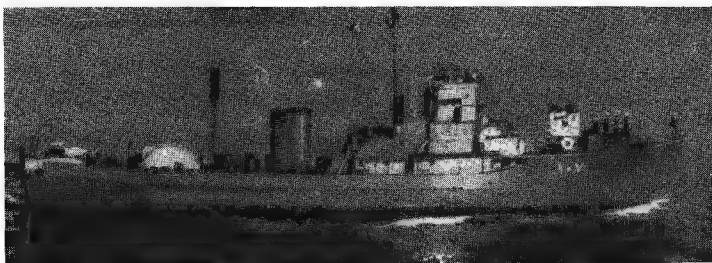
NDALDHUT DAINANI

Measurement: 1,600 tons deadweight
Dimensions: 220×33×15 (max.) feet
Machinery: 2 diesels, B.H.P.: 1,600=12 kts.

General Reported to be Soviet built. Launched in 1956.

ALGERIA

COASTAL MINESWEEPERS



SIDI FRADJ

DJEBEL AURES (ex-Tor)

Ex-U.A.R.

SIDI FRADJ (ex-Darfour)

Displacement: 215 tons standard (270 tons full load)
Dimensions: 136 (o.a.)×24½×6 feet
Guns: 1—3 inch, 2—20 mm. AA.
Machinery: Diesels, B.H.P.: 1,000=13 kts.
Oil fuel: 16 tons

General Ex-U.S. BYMS type coastal minesweepers presented to Algiers by Egypt to form the nucleus of the new Algerian Navy. Both Darfour (ex-BYMS 2041) and Tor (ex-BYMS 2175) arrived in Algiers on 4 Nov, 1962, being officially handed over on 6 Nov. and renamed.

ARGENTINA

Administration

Secretary of Marine:
Vicealmirante (R.A.) Manuel A. Pita.

Chief of Naval Operations:
Contraalmirante Benigno I. M. Varela.

Commander-in-Chief, Sea-going Fleet:
Contraalmirante Jorge Alberto Boffi.

Chief of Naval Commission in Europe and
Naval Attaché in London:
Captain Ruben R. Giavedoni.

Naval Attaché in Washington:
Contraalmirante Pedro A. J. Gnani.

Personnel

1965: 2,300 officers, 31,000 ratings (including
15,000 conscripts).

Ships

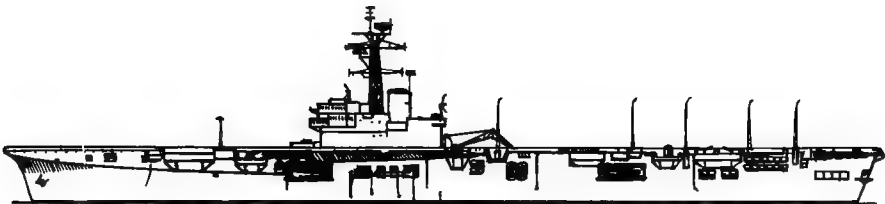
The names of all Argentine warships and
naval auxiliary vessels are prefaced by
"A.R.A." (Armada Republica Argentina).

Mercantile Marine

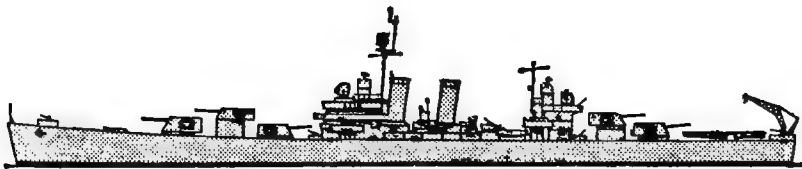
Lloyd's Register of Shipping:
318 vessels of 1,284,397 tons gross

Silhouettes

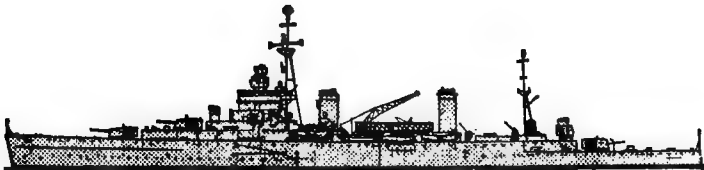
Scale: 150 feet=1 inch



INDEPENDENCIA



GENERAL BELGRANO, 9 DE JULIO



LA ARGENTINA



BROWN, ROSALES



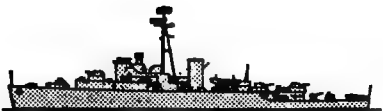
BUENOS AIRES Class



HEROINA, SARANDI



KING, MURATURE



AZOPARDO, PIEDRABUENA

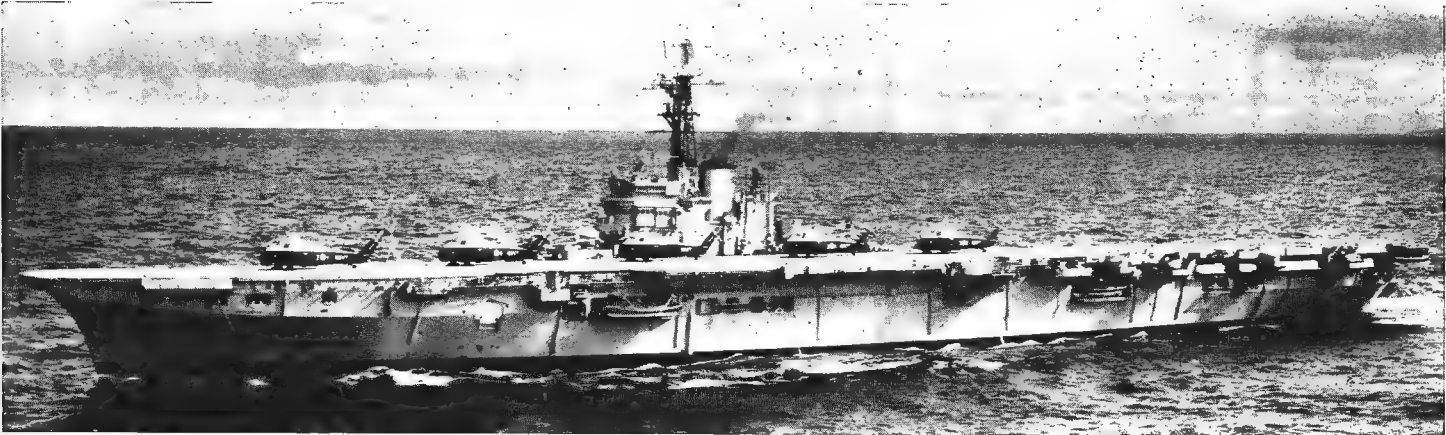


COMODORO AUGUSTO LASSERE



REPUBLICA

AIRCRAFT CARRIER (Portaviones)



INDEPENDENCIA

1964, Argentine Navy, Official

I Ex-British Type ("Colossus" Class)

INDEPENDENCIA (ex-H.M.S. Warrior)

Deck No.:	V 1 (formerly letter J)
Builders:	Harland & Wolff, Ltd., Belfast
Laid down:	12 Dec. 1942
Launched:	20 May 1944
Completed:	24 Jan. 1946
Displacement:	14,000 tons standard, 18,400 tons normal (19,540 tons full load)
Dimensions:	Length: 630 (pp.), 695 (o.a.) feet. Beam: 80 feet. Width: 118 (o.a.) feet. Draught: 21½ (mean), 23½ (max.) feet. Flight deck: 690 feet long, 80 feet wide, 39 feet above water line
Guns:	8—40 mm. Bofors AA.
Aircraft:	21 capacity
Machinery:	Parsons geared turbines. 2 shafts. S.H.P.: 40,000=25 kts. (24.25 kts. sea speed)
Boilers:	4 Admiralty, 3-drum type (400 lb. working pressure, 700 degrees maximum superheat)
Oil fuel:	3,200 tons
Radius:	12,000 miles at 14 kts.; 6,200 miles at 23 kts.
Complement:	1,076 (peace), 1,300 (war)

General
Lent to the Royal Canadian Navy from 1946 to 1948. Served in the British Navy from 1948 to 1958. Modernised in 1952-53 with lattice foremast and extended and enlarged bridgework. Again modernised in 1955-56 with the partially angled flight deck and improved arrestor gear. Acted as headquarters ship in the Christmas Island Atomic experiments from Feb. to Oct. 1957. Negotiations for the sale of the ship to the Argentine Government were concluded by the British Government in July 1958. Sailed from Portsmouth to Argentina on 10 Dec. 1958. Renamed *Independencia* at Puerto Belgrano naval base on 26 Jan. 1959.

Engineering
Engines and boilers are arranged *en echelon*, the two propelling machinery spaces having one set of turbines and two boilers installed side by side in each space, on the unit system, so that the starboard propeller shaft is longer than the port shaft. Maximum speed is 25 knots at 225 revolutions per minute. Economical speed is 15 knots at 120 revolutions per minute.

Hangar
Dimensions of hangar are: Length, 445 feet; width, 52 feet; clear depth, 17½ feet. Dimensions of aircraft lifts are: 45 feet by 34 feet.



INDEPENDENCIA

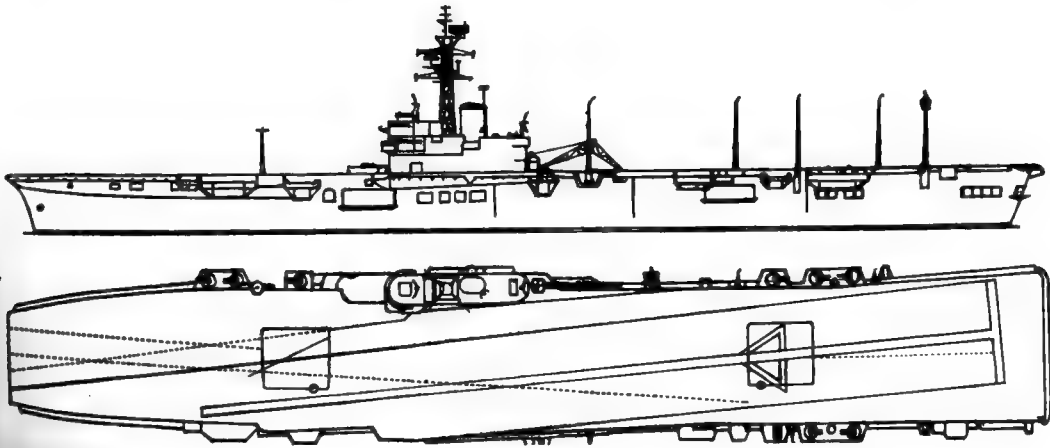
1964, Argentine Navy, Official

Construction
Flight deck is reported to have been strengthened to take aircraft of over 8 tons in weight. Sponsons can be dismantled to the extent of 3½ feet on either side if necessary to allow for passage through Panama Canal. Mercantile type hull. Built to Lloyd's specification up to main deck with the original intention of converting to commercial service after the Second World War. Damage control: No great measure of vertical sub-division on the sandwich system as it was reckoned that it is better for ships to settle evenly in the event of damage and flooding than to foster capsizing. Insulated for tropical service and partially air-conditioned.

Operational
Ten arrestor wires to take 15,500 lb. aircraft up to 60 knots. Single track catapult for launching 20,000 lb. aircraft at 60 knots. Catapult accelerator gear port side forward. Flight deck originally designed for 14,000 lb. aircraft reinforced to take 20,000 lb. machines.

Photographs
A port surface view appears in the 1957-58 to 1963-64 editions and a port bow oblique aerial view in the 1959-60 to 1963-64 editions.

Drawing
Port elevation and plan. Redrawn in 1965. Scale: 128 feet=1 inch.



CRUISERS



9 DE JULIO

1964, Argentine Navy, Official

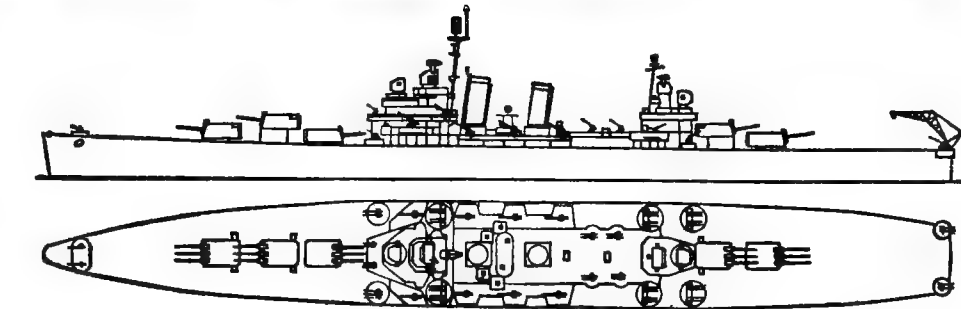
2 "9 de Julio" Class

GENERAL BELGRANO (ex-17 de Octubre, ex-Phoenix)
NUEVE DE JULIO (ex-Boise)

Name:	General Belgrano	9 de Julio
Builders:	New York S.B. Corp. Camden	Newport News S.B. & D.D. Co.
Laid down:	15 Apr. 1935	1 Apr. 1935
Launched:	12 Mar. 1938	3 Dec. 1936
Completed:	18 Mar. 1939	1 Feb. 1939

Displacement:	General Belgrano: 10,800 tons standard, 12,650 tons normal (13,645 tons full load) Nueve de Julio: 10,500 tons standard, 12,300 tons normal (13,645 tons full load)
Dimensions:	Length: 608½ (o.a.) feet. Beam: 69 feet. Draught: 24 feet (max.)
Guns:	15—6 inch, 47 cal.; 8—5 inch, 25 cal.; 28—40 mm. AA.; 16—20 mm. AA.; 4—47 mm. saluting
Aircraft:	4 helicopters
Armour:	4"—1½" belt, 3"—2" decks, 5"—3½" turrets, 8" C.T.
Machinery:	Westinghouse geared turbines, 4 shafts. S.H.P.: 100,000=32.5 kts.
Boilers:	8 Babcock & Wilcox Express type
Oil fuel:	2,200 tons
Radius:	7,600 miles at 15 kts.
Complement:	1,200

General
Formerly CL 46 and CL 47, respectively, of the U.S. "Brooklyn" Class. Superstructure has been reduced,



bulges added, beam increased, and mainmast derricks and catapults removed. Purchased from the United States in 1951 at a cost of \$7,800,000, representing 10 per cent of their original cost (\$37,000,000) plus the expense of reconditioning them. Both were transferred to the Argentine Navy on 12 Apr. 1951. General Belgrano was commissioned under the name 17 de Octubre at Philadelphia on 17 Oct. 1951. 9 de Julio was commissioned into the Argentine Navy at Philadelphia on 11 Mar. 1952.

Historical
9 de Julio refers to 9 July, 1816, when the Argentine provinces signed the Declaration of Independence. 17 de Octubre was renamed General Belgrano in 1956 following the overthrow of President Peron the year before.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.

Hangar
The hangar in the hull right aft could accommodate one helicopter together with engine spares and duplicate parts, though 4 aircraft was the original complement. The incorporation of this hangar resulted in a very wide and nearly flat counter and high freeboard aft and also gave the after guns higher command. Above the hangar a revolving crane was placed at the stern extremity overhanging the hangar hatch. The two aircraft catapults originally mounted above the hangar, as far outboard as possible, were removed. It was officially stated in May 1960 that the crane and catapult of these two cruisers have been removed, and they do not carry any aircraft.

Photographs
A starboard bow aerial view of 9 de Julio appears in the 1954-55 to 1958-59 editions, a larger port quarter surface view of 9 de Julio in the 1957-58 edition, and a port broadside view of General Belgrano in the 1957-58 to 1963-64 editions.



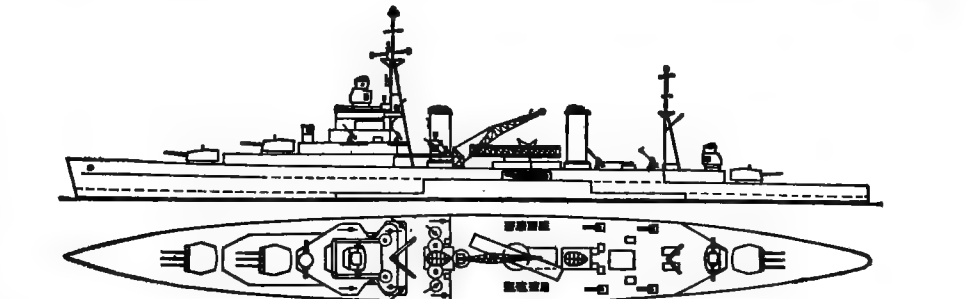
LA ARGENTINA

1963, Bob Turner

LA ARGENTINA	Vickers-Armstrongs Ltd., Barrow-in-Furness
Builders:	Jan. 1936
Laid down:	16 Mar. 1937
Launched:	31 Jan. 1939
Completion:	

Displacement:	6,000 tons standard, 7,610 tons normal (8,630 tons full load)
Dimensions:	Length: 510 (pp.), 541½ (o.a.) feet. Beam: 56½ feet. Draught: 16½ feet (max.)
Guns:	9—6 inch, 4—47 mm., 14—40 mm. AA.
Tubes:	6—21 inch (tripled)
Armour:	3" side, 2" deck, 2" gunhouses, 3" C.T.
Machinery:	Parsons geared turbines, 3 shafts. S.H.P.: 54,000=30 kts.
Boilers:	4 Yarrow, pressure 300 lb.
Oil fuel:	1,500 tons
Radius:	7,500 miles at 12 kts.
Complement:	800

General
Specially designed as Training Cruiser. Named after



the Republic. Cost 6,000,000 gold pesos (about £1,750,000). The catapult originally mounted for the two Seagull Amphibion aircraft formerly carried was suppressed, and it was officially stated in May 1960 that the crane was also removed. Sailed on world cruise with cadets on 18 July 1961.

Drawing
Port elevation and plan. Catapult and crane have been removed. Scale 128 feet=1 inch.

Gunnery
Original 4 inch guns were removed in 1950 and 40 mm. guns added.

DESTROYERS

3 Ex-U.S. "Fletcher" Class

Displacement: 2,100 tons standard (3,050 tons full load)
Dimensions: 376½ (o.a.) x 39½ x 12½ (mean), 18 (max.) feet
Guns: Espora: 5—5 inch, 38 cal. d.p., 6—40 mm. Bofors, 10—20 mm. Oerlikon
Brown, Rosales: 4—5 inch, 38 cal., 6—3 inch, 50 cal. AA.
Tubes: 5—21 inch (quintupled).
A/S weapons: 2 fixed Hedgehogs, 1 D.C. rack, 2 side-launching torpedo racks
Machinery: 2 sets General Electric geared turbines. 2 shafts. S.H.P.: 60,000 =35 kts.
Boilers: 4 Babcock & Wilcox
Oil fuel: 650 tons
Radius: 6,000 miles at 15 kts.
Complement: 300 (peace) 350 (war)

General
Former United States destroyers transferred to the Argentine Navy on 1 Aug. 1961. Espora is of the later "Fletcher" class.

Photographs
A photograph of Rosales (as U.S.S. Stembel), a port dead broadside view, appears in the 1962-63 to 1964-65 editions.



BROWN

1965, Argentine Navy, Official

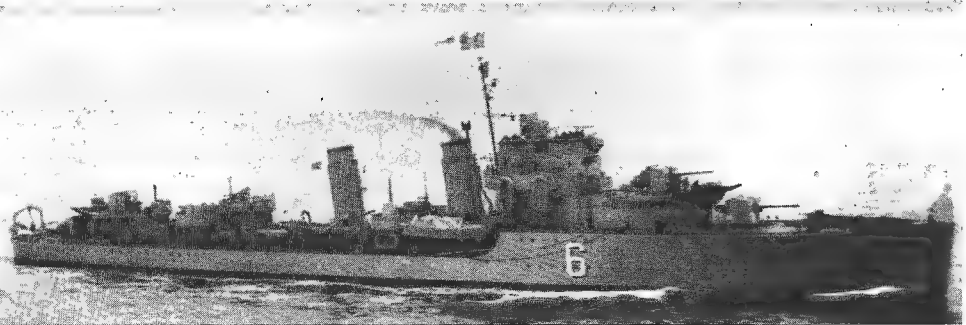
Name	Pennant No.	Builders	Laid down	Launched	Completed
BROWN (ex-U.S.S. Heerman, DD 532)	D 20	Bethlehem Steel Co., San Francisco	8 May 1942	5 Dec. 1942	6 July 1943
ESPORA (ex-U.S.S. Dortch, DD 670)	D 21	Federal S.B. & D.D. Co., Port Newark	1942	20 June 1943	16 July 1943
ROSALES (ex-U.S.S. Stembel, DD 644)	D 22	Bath Iron Works Corporation, Bath, Maine	21 Dec. 1942	8 May 1943	7 Aug. 1943

6 "Buenos Aires" Class

Displacement: 1,375 tons standard, 1,820 to 1,850 tons normal (1,980 to 2,010 tons full load)
Dimensions: 312 (pp.), 320 (w.l.), 323 (o.a.) x 34½ x 10½ (mean) feet
Guns: 4—4.7 inch, 6—40 mm. AA., 5 M.G.
Tubes: 4—21 inch (quadrupled)
A/S weapons: 4 D.C.T.
Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 34,000=35 kts.
Boilers: 3, of 3-drum type
Oil fuel: 450 tons
Radius: 4,100 miles at 14 kts.
Complement: 200

General
All laid down in 1936 and completed during March-Oct. 1938. Cost approached £400,000 each. Carrientes, of this class, was lost by collision with the heavy cruiser Almirante Brown during exercises on 3 Oct. 1941. Names are those of provinces of the Argentine Republic. Classification of these ships was changed from Exploradores to Torpederos in 1952 and from Torpederos to Destructoros in 1957. Four torpedo tubes were removed in 1956.

Photographs
A photograph of Santa Cruz appears in the 1952-53 to 1956-57 editions, of San Juan in the 1953-54 to 1958-59 editions, of Entre Rios in the 1957-58 to 1963-64 editions.



BUENOS AIRES

1964, Argentine Navy, Official

Name	Pennant Nos.	Builders	Launched
BUENOS AIRES	D 6	Vickers-Armstrongs Ltd., Barrow-in-Furness	21 Sep. 1937
ENTRE RIOS	D 7	Vickers-Armstrongs Ltd., Barrow-in-Furness	21 Sep. 1937
MISIONES	D 11	Cammell Laird & Co. Ltd., Birkenhead	23 Sep. 1937
SAN JUAN	D 9	John Brown & Co. Ltd., Clydebank	24 June 1937
SAN LUIS	D 10	John Brown & Co. Ltd., Clydebank	24 Aug. 1937
SANTA CRUZ	D 12	Cammell Laird & Co. Ltd., Birkenhead	3 Nov. 1937

SUBMARINES

2 Ex-U.S. "Balao" Class

SANTA FE (ex-U.S.S. Lamprey, SS 372)
SANTIAGO DEL ESTERO (ex-U.S.S. Macabi, SS 375)

Name: Santa Fe Santiago del Estero
Pennant No.: 5 11 5 12
Launched: 18 June 1944 19 Sep. 1944
Completed: 17 Nov. 1944 29 Mar. 1945
Displacement: 1,526 tons standard, 1,816 tons surface (2,425 tons submerged)
Dimensions: 311½ x 27 x 17 feet
Tubes: 10-21 inch (6 bow, 4 stern), 24 torpedoes Mk. 14
Machinery: General Motors 2-stroke diesels. B.H.P.: 6,500=20 kts. (surface). Electric motors. H.P.: 4,610=10 kts. (submerged)
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 82

General
Former United States submarines of the "Balao" class. Lamprey was transferred from the U.S.A. to Argentina at Mare Island Naval Shipyard, San Francisco, on 21 July 1960, and Macabi in Sep. 1960, after having been refitted. Both were built by the Manitowoc Shipbuilding Company. Have two engine rooms instead of one to reduce size of compartments.

Photographs
A photograph of Santiago del Estero appears in the 1962-63 to 1964-65 editions.



SANTA FE

1965, Argentine Navy, Official

Disposals
The old submarines Salta and Santiago del Estero were withdrawn from service and deleted from the list, it was officially stated in May 1960. Their sister ship Santa Fe was officially removed from the list in 1957,

FRIGATES

2 "Azopardo" Class

AZOPARDO	PIEDRABUENA	
Name:	Azopardo	Piedrabuena
Pennant No.:	P 35	P 36
Laid down:	Nov. 1950	Nov. 1950
Launched:	11 Dec. 1953	17 Dec. 1954
Completed:	7 July 1957	16 Dec. 1958
Displacement:	1,160 tons standard, 1,220 tons normal (1,400 tons full load)	
Dimensions:	279 x 31½ x 10 feet	
Guns:	1—4.1 inch, 6—40 mm. AA.	
A/S weapons:	1 Hedgehog, 4 Depth Charge Mortars	
Machinery:	2 Parsons steam turbines, 2 shafts, S.H.P.: 5,000—20 kts.	
Boilers:	2 Water tube 3-drum type	
Oil fuel:	340 tons	
Radius:	2,300 miles	
Complement:	167	
General	Both built at Astillero Nav. Rio Santiago. Improved	

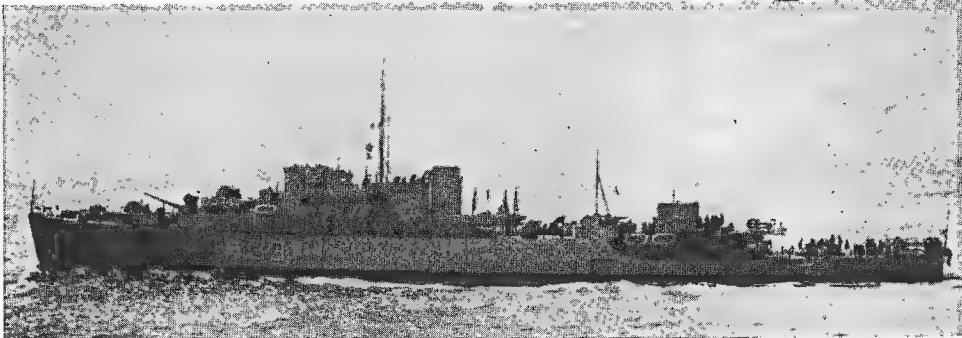


PIEDRABUENA 1959, Argentine Navy, Official

"King" type. Azopardo is named after the Argentine naval hero. Officially rated as frigates. Photographs A photograph of Azopardo appears in the 1958-59 edition.

2 "Sarandi" Class Ex-U.S. PF Type

HEROINA (ex-U.S.S. Reading, PF 66)		
SARANDI (ex-U.S.S. Unlontown, ex-Chattanooga, PF 65)		
Name:	Heroína	Sarandí
Pennant No.:	P 32	P 33
Builder:	Leatham D. Smith S.B. Co., Sturgeon Bay, Wisconsin.	
Laid down:	25 May 1943	21 Apr. 1943
Launched:	28 Aug. 1943	7 Aug. 1943
Completed:	19 Aug. 1944	15 Sep. 1944
Displacement:	1,420 to 1,445 tons standard, 1,920 tons normal (2,235 to 2,415 tons full load)	
Dimensions:	285½ (w.l.), 304 (o.a.) x 37½ x 13½ feet	
Guns:	2—4.1 inch, 8—40 mm. AA.	
A/S weapons:	1 Hedgehog, 6 D.C.T.	
Machinery:	Triple expansion, 2 shafts, I.H.P.: 5,500—20½ kts. on trials (19 kts. sea speed)	
Boilers:	2 of 3-drum type	
Oil fuel:	700 tons	
Radius:	7,800 miles at 12 kts.	
Complement:	175	
General	Former United States patrol escorts of the "Tacoma"	



SARANDI 1960, Argentine Navy, Official

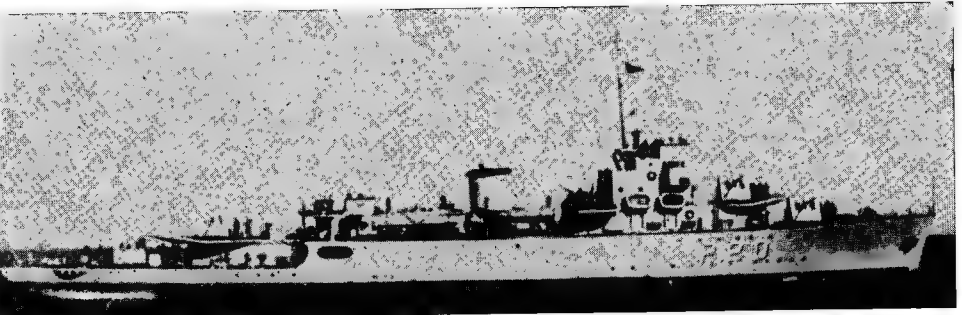
class. These ships bear the names of frigates which saw prominent action during the War of Independence. Sister ship Santísima Trinidad, P 34 (ex-H.M.S. Calcos, ex-Hannam) was reclassified as a surveying vessel in 1963 (see next page). Photographs A photograph of Heroína appears in the 1952-53 to 1959-60 editions. (She is now in reserve). Recent Disposal The former United States patrol frigate Hercules, P 31, (ex-U.S.S. Asheville, PF 1, ex-H.M.C.S. Nadur, ex- H.M.S. Adur) first of the U.S. "Asheville" class (British "River" type) was stricken from the list in 1963.

CORVETTES

2 "King" Class

Rated as Patrol Vessels

KING	MURATURE	
Name:	King	Murature
Pennant No.:	P 21	P 20
Laid down:	Dec. 1938	June 1938
Launched:	Dec. 1943	July 1945
Completed:	28 July 1946	18 Nov 1946
Displacement:	913 tons standard, 1,000 tons normal (1,032 tons full load)	
Dimensions:	252½ x 29 x 7½ feet	
Guns:	3—4.1 inch, 2—40 mm. Bofor AA., 2—40 mm. NA. AA., 1 M.G.	
A/S weapons:	4 D.C.T.	
Machinery:	2 Werkspoor 4-stroke diesels, 2 shafts, B.H.P.: 2,500=18 kts.	
Oil fuel:	90 tons	
Radius:	9,000 miles at 12 kts.	
Complement:	130	



MURATURE 1964, Argentine Navy, Official

General Both built at Astillero Nav. Rio Santiago. Named after Captain John King, an Irish follower of Admiral Brown, who distinguished himself in the war with Brazil, 1826-28; and Captain Murature, who performed conspicuous service against the Paraguayans at the Battle of Cuevas on Aug. 6 1865. Photographs A photograph of King appears in the 1952-53 to 1963-64 editions.

I Ex-British "Flower" Class

REPUBLICA (ex-Smllax, ex-Tact, ex-PG 98)		
Builders:	Collingwood Shipyards	
Launched:	24 Dec. 1942	
Converted:	21 June 1943	
Displacement:	995 tons standard, 1,220 tons normal (1,375 tons full load)	
Dimensions:	206½ x 34½ x 14½ feet	
Guns:	1—4.1 inch AA., 2—20 mm. AA.	
A/S weapons:	1 Hedgehog, 4 D.C.T.	
Machinery:	Triple expansion, 1 shaft, I.H.P.: 2,750=16 kts. (max.)	
Boilers:	2	
Oil fuel:	350 tons	
Radius:	6,800 miles at 10 kts.	
Complement:	106	
General	Former British modified "Flower" Class corvette (frigate). Transferred in 1949. Perpetuates the name of a corvette which distinguished herself in the War of Independence. Pennant No. P 10.	



REPUBLICA 1960, Argentine Navy, Official

MINESWEEPERS



1960, Argentine Navy, Official

4 "Bouchard" Class

Name	Pennant No.	Builders	Launched
GRANVILLE	M 4	Rio Santiago Naval Yard	27 Jan. 1937
PY	M 10	Rio Santiago Naval Yard	30 Mar. 1938
ROBINSON	M 3	Hansen & Puccini, San Fernando	18 Aug. 1938
SEAVAR	M 12	Hansen & Puccini, San Fernando	18 Aug. 1938

Displacement: 450 tons standard, 605 to 620 tons normal (650 tons full load)
Dimensions: 164 (pp.), 197 (o.a.) x 24 x 8½ feet (max.)
Guns: 4—40 mm. Bofors AA., 2 M.G.
Machinery: 2 sets M.A.N. 2-cycle diesels, B.H.P.: 2,000=16 kts.
Oil fuel: 50 tons
Radius: 3,000 miles at 10 kts.
Complement: 70

General
All laid down in 1935-37. First Argentine warships built in local shipyards. Named after distinguished naval officers (several of whom were of British extraction). Carry mines.
Recent Disposals
It was officially stated in 1963 that sister ships *Drummond*, *Parker* and *Spiro* of this class had been stricken from the Navy List.
Transfer
Bouchard of this class was transferred to the Paraguayan Navy in 1964.

Coastal Minesweepers
The Argentine Embassy in London announced on 11 Jan. 1962 that it had been decided to place orders with the British shipbuilding firm of John I. Thornycroft & Co., Ltd., Woolston, Southampton, for the construction of six coastal minesweepers of the "Ton" class, non-magnetic type (also for the construction of four general purpose A/S frigates of the "Leander" class, two from J. Samuel White & Co. Ltd., Cowes, Isle of Wight, and two from Yarrow & Co., Ltd., Scotstoun, Glasgow).
But on 17 May it was officially stated that the orders had been shelved for an indefinite period owing to the financial position of Argentina.

MOTOR TORPEDO BOATS



P 81

Added 1958, Argentine Navy, Official

4 Ex-U.S. "Higgins" Class

P 82	P 84	P 86	P 88
Displacement: 45 tons standard (50 tons full load) Dimensions: 71 (pp.), 78½ (o.a.) x 20 x 4½ feet Guns: 2—40 mm. NA. AA., 2—5 inch Br. AA. M.G. Torpedoes: 4 torpedo cradles A/S weapons: 2 rocket projectors Machinery: 3 Packard engines. H.P.: 4,500=42 kts. (max.) Fuel: 9 tons aviation spirit. Radius: 1,000 miles at 20 kts. Complement: 12			

General
"Higgins" type. Built in New Orleans, U.S.A. in 1946. Originally designated as an "LT" series (1 to 9).
Recent Disposals
P 81, P 83, P 85, P 87 and P 89 were officially removed from the List in 1963.

REPAIR SHIP

INGENIERO IRIBAS (ex-U.S. LST 81)

Displacement: 2,160 tons standard (3,776 tons full load) Dimensions: 382 x 50 x 16½ feet Guns: 2—40 mm. AA. Bofors Machinery: 2 sets diesels. B.H.P.: 1,800=11 kts. Oil fuel: 700 tons Radius: 9,500 miles at 9 kts. Complement: 150
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General
Built by Jeffersonville Boat and Mach., Indiana. Launched in 1943. Two propellers and two rudders. Fitted as Repair Ship. Rated as Workshop Vessel. Bears the name of an engineer of the Argentine Navy who died on duty. Former U.S. landing ship. (Served in the British Navy during 1943-46.) Pennant No. Q 21. Sister ship *Ingeniero Godda* (ex-U.S. LST 82) was withdrawn from service on 25 Aug. 1960 and deleted from the list.
Disposals
The very old river monitors *Parana* and *Rosario* were withdrawn from service in 1958.

SURVEYING VESSELS (Buques Oceanograficos)



COMODORO AUGUSTO LASSERE 1965, Argentine Navy, Official

COMODORO AUGUSTO LASSERE (ex-Santísima Trinidad, P 34, ex-H.M.S. Calcos, ex-Hannam)

Displacement: 1,430 tons standard (2,415 tons full load) Dimensions: 285½ (w.l.), 304 (o.a.) x 37½ x 13½ feet Guns: 2—4.1 inch, 8—40 mm. AA. A/S weapons: 1 Hedgehog, 6 D.C.T. Machinery: Triple expansion: 2 shafts. I.H.P.: 5,500=20.3 kts. (on first trials), now 19 kts. (max.) Boilers: 2, of 3-drum type Oil fuel: 700 tons Radius: 7,800 miles at 12 kts. Complement: 100
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General
Former patrol frigate of the British "Colony" class (United States "Tacoma" type). Built by the Walsh-Kaiser Yard, Providence, R.I. Laid down in 1943, launched on 6 Sep. 1943, and completed on 2. Jan. 1944. Served in the Argentine Navy as a frigate until 1963, when she was reclassified as a surveying vessel and her name changed from *Santísima Trinidad* to *Comodoro Augusto Lassere*. Officially rated as *Buque de Investigaciones científicas*. Pennant No. Q 9.

CAPITAN CANEPA (ex-H.M.C.S. Barrie)

Displacement: 995 tons standard (1,265 tons full load) Dimensions: 208 x 33½ x 16½ feet Machinery: Triple expansion. I.H.P.: 2,750=15 kts. Boilers: 2 Oil fuel: 271 tons Complement: 54
--

General
Former Canadian corvette (frigate) of the "Flower" class. Launched in Canada on 12 Nov. 1940. Completed on 12 May 1941. A photograph of *Capitan Canepa* appears in the 1958-59 to 1964-65 editions.

USHUAIA

Displacement: 1,275 tons standard (1,500 tons full load) Dimensions: 211 x 31½ x 11½ feet Guns: Removed Machinery: 2 sets diesels. 2 shafts. B.H.P.: 1,200=12.7 kts. Oil fuel: 60 tons Radius: 3,500 miles Complement: 65

General
Built at Rio Santiago. Launched in 1939. Named after the capital of the territory of Tierra del Fuego. Pennant No. B4. Formerly rated as a transport until 1959.
Recent Disposals
The old surveying vessel *Bahia Blanca* (ex-San Luis) was deleted from the list in 1963.
Her sister ship *Madryn* became a training ship in 1961 (see next page).

ALFEREZ MACKINLAY

Displacement: 700 tons standard, 935 tons normal (1,020 tons full load) Dimensions: 193 x 28½ x 13 feet Machinery: H.P.: 520=9.5 kts. Coal Fuel: 195 tons Radius: 4,500 miles

General
Built in the Netherlands. Launched in 1914. Former Surveying Vessel used as Lighthouse Inspection Vessel. Subsequently fitted out as a Rescue Ship and rated as such until 1959 when she was reclassified as a surveying vessel. Pennant No. Q 11.

The gantry Ship *Samba* (ex-U.S. LST 1104) is no longer a unit of the Navy.

TANK LANDING SHIPS

CABO SAN BARTOLOME BDT 1 CABO SAN FRANCISCO DE PAULA BDT 3	CABO SAN GONZALO BDT 4 CABO SAN ISIDRO BDT 6 CABO SAN VICENTE BDT 14
Displacement:	2,366 tons (beaching), 4,080 tons (full load)
Dimensions:	316 (w.l.), 328 (o.a.) x 50 x 11½ (14 max.) feet
Machinery:	2 sets diesels. Two screws, B.H.P.: 1,800=11 kts.
Oil fuel:	700 tons
Radius:	9,500 at 9 kts.
Complement:	80

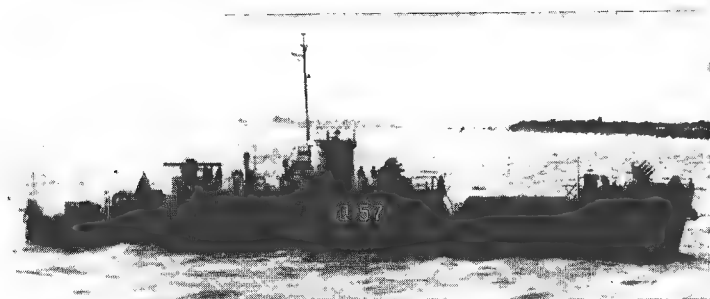
General
Ex-United States LST's 875, 998, 872, 919, 1108. Built by Puget Sound Bridge and Dredging Co., Seattle, U.S.A. Launched in 1944. Have two rudders. BDT 5, BDT 8, BDT 9, and BDT 12, were withdrawn from service in 1958-60. BDT 2, BDT 7, BDT 10, BDT 11 and BDT 13 were scrapped in 1964, it is officially stated.

MEDIUM LANDING SHIPS

BDM 1	BDM 2
Displacement: 743 tons (beaching), 1,095 tons (full load) Dimensions: 196½ (w.l.), 203½ (o.a.) x 33½ x 6 (8 max.) feet Machinery: 2 sets diesels. 2 shafts. B.H.P.: 2,800=13 kts. Oil fuel: 170 tons Radius: 4,100 miles at 12 kts. Displacement: 60	

General
Former American LSM's 267 and 86, respectively. Pennant Nos. Q 69 and Q 70.

INFANTRY LANDING CRAFT



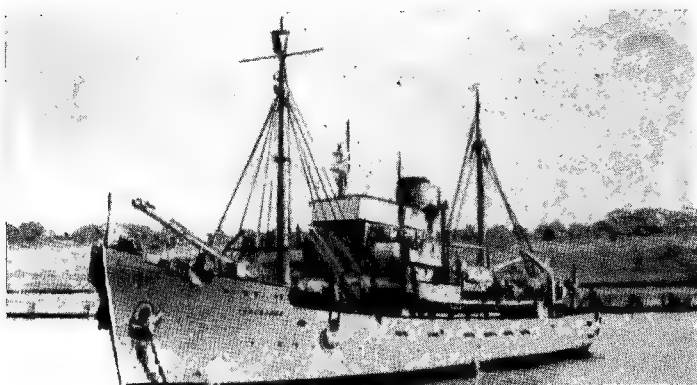
BDI 4	1960, Giorgio Arca	
BDI 1 (Q 54)	BDI 4 (Q 57)	BDI 15 (Q 68)
Displacement:	230 tons <i>light</i> (387 tons <i>full load</i>)	
Dimensions:	153 (w.l.), 159 (o.a.) × 23½ × 5 feet	
Guns:	2—20 mm. NA. AA. (only in BDI's 2 and 4)	
Machinery:	8 sets diesels. B.H.P.: 3,200=14 kts. Two reversible propellers	
Oil fuel:	110 tons	
Radius:	6,000 miles at 12 kts.	
Complement:	30	

General

Ex-American LCIL's 583, 606 and 689, BDI 3, BDI 6, BDI 8, BDI 9, BDI 11 and BDI 13 were withdrawn from service in 1958. BDI 1 and BDI 4 were given new Q numbers as shown above instead of Q 64 and 67. BDI 10 (Q 63) was converted into an oiler in 1960 and renamed *Punta Lara*. BDI 5, BDI 7, BDI 12 and BDI 14 were officially deleted from the list in 1961, and BDI 2 in 1963.

Minor Landing Craft

There are also 20 personnel and vehicle landing craft, all ex-American LCPV's numbered EDVP 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 17, 19, 20, 21, 22, 24, 27 and 28. Displacement 12 tons. Dimensions: 39½ × 10½ × 5½ feet. Machinery: diesel. Speed 9 kts. Nos. 16, 23, 25 and 26 were withdrawn from service in 1959.

SALVAGE VESSEL (*Buque de Salvamento*)

GUARDIAMARINA ZICARI 1962, Argentine Navy, Official

GUARDIAMARINA ZICARI (ex-Tehuelche, ex-H.M.S. *Kingfisher*, ex-King Salvor)

Displacement:	1,600 tons
Dimensions:	200½ (pp.), 216 (o.a.) × 37½ × 13 (max.) feet
Machinery:	Triple expansion, 2 shafts. I.H.P.: 1,500=12 kts.
Oil fuel:	310 tons
Complement:	82

General

Former British submarine rescue ship. Built as an Admiralty ocean salvage vessel by Wm. Simons & Co. Ltd., Renfrew, Scotland, and laid down on 17 May 1941, launched on 18 May 1942 and completed on 17 July 1942. Converted into a Submarine Rescue Bell and Target Ship in 1953-54. Paid off as Bell Rescue Ship in 1958 and subsequently employed as a Submarine Support Ship and Tender. Purchased from Great Britain in Dec. 1960, and sailed from Chatham to Argentina in Apr. 1961, and renamed *Tehuelche*. Again renamed *Guardiamarina Zicari* in Apr. 1963.

TRAINING SHIPS (*Buques Escuela*)**LIBERTAD**

Displacement:	3,025 tons standard (3,765 tons full load) officially revised figures
Dimensions:	262 (w.l.), 301 (o.a.) × 47 × 21½ feet
Guns:	1—3 inch, 4—40 mm. AA., 4—47 mm. saluting
Machinery:	2 Sulzer diesels. B.H.P.: 2,400=13½ kts.
Endurance:	15,000 miles
Complement:	370 (crew) plus 150 cadets

General

Built in the State-owned shipyards at Rio Santiago. Sailing ship. Three masts. Launched on 30 June 1956.

MADRYN (ex-Comodoro *Rivadavia*, ex-San Juan)

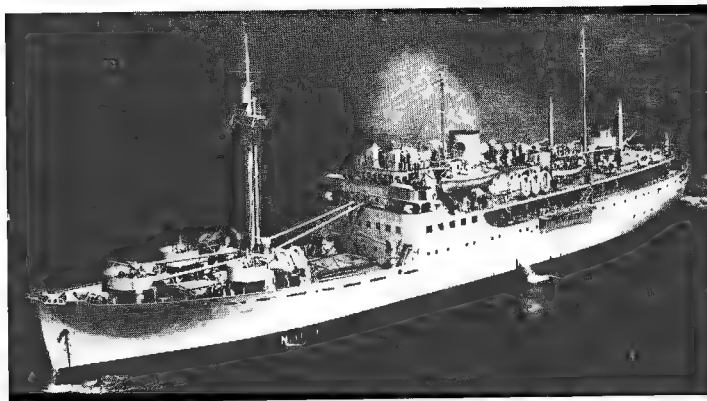
Displacement:	843 tons standard (970 tons full load)
Dimensions:	195 (pp.), 206½ (o.a.) × 33 × 11½ feet
Guns:	1—3 inch
Machinery:	Hawthorn-Werkspoor Diesel. 1 shaft. B.H.P.: 750=12½ kts.
Boiler:	1 single-ended Scotch to supply steam to auxiliary machinery
Oil fuel:	88 tons
Radius:	7,000 nautical miles
Complement:	63

General

Built by Hawthorn Leslie & Co., Ltd., Hebburn-on-Tyne. Launched on 27 Sep. 1927. Delivered in Feb. 1928. Named after Argentine port. Pennant No. Q6. Formerly a surveying vessel until 1961, when she became a training ship. Sister ship of surveying vessel *Bahia Blanca*, officially stricken from the list in 1963.

Disposal

The very old training ship *Presidente Sarmiento* was officially deleted from the list in 1961.

TRANSPORTS (*Transportes*)

BAHIA THETIS

Added 1960, Skyfotos

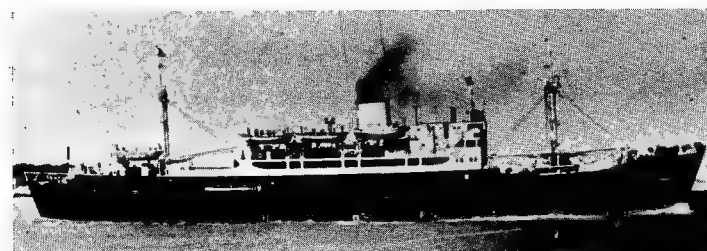
3 Canadian Built

BAHIA AGUIRRE**BAHIA BUEN SUCESO****BAHIA THETIS**

Displacement:	3,100 tons standard (5,000 tons full load)
Dimensions:	334½ × 47 × 18½ feet
Guns:	(Bahia Thetis) 2—4½ inch 2—40 mm. Bofors AA. 2—20 mm. NA. AA., 4—47 mm. saluting (Bahia Aguirre) 2—20 mm. NA. AA. (only in BDI's 2 and 6)
Machinery:	2 sets Nordberg diesels. 2 shafts. B.H.P.: 3,750=16 kts.
Oil fuel:	500 tons (Bahia Thetis), 422 tons (Bahia Buen Suceso), 355 tons (Bahia Aguirre)
Radius:	15,000 miles
Complement:	100

General

Built in Canada by Halifax Shipyards. Bahia Buen Suceso was completed at Halifax, Nova Scotia, in June 1950. Pennant Nos. B 2, B 6 and B 8, respectively. First two are troop transports; Bahia Thetis is used as a training ship and carries guns (see above).



LA PATAIA

Added 1964, Argentine Navy, Official

1 Italian Built

LA PATAIA

Displacement:	3,825 tons standard (6,000 tons full load)
Dimensions:	335½ × 50½ × 23 feet
Machinery:	2 sets diesels. 2 shafts. B.H.P.: 3,400=16 kts.
Oil fuel:	500 tons
Radius:	15,000 miles
Complement:	100

General

Built in Italy by C. R. del Adriatico (CRDA). Laid down on 25 Apr. 1948, launched on 25 June 1949, and completed in June 1950 being delivered on 2 Oct. 1951. Pennant No. B 10, Troop transport.

Recent Disposals

Sister ships *Le Maire* and *Les Eclaireurs* were scrapped in 1964; it is officially stated.

Reclassification

The transport *Ushuala* has been reclassified as a surveying vessel (see previous page).

Disposal of German Type

The transport *Beagle* has been stricken from the Navy List. It was officially stated in 1963.

1 Ex-U.S. FS Type

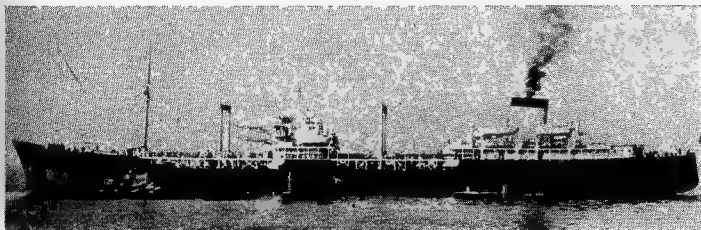
SAN JULIAN (ex-FS 281)

Displacement:	930 tons
Dimensions:	176 × 32½ × 11 feet
Machinery:	2 sets diesels. 2 shafts. B.H.P.: 1,000=10 kts.
Oil fuel:	75 tons
Complement:	40

General

Ex-U.S. Army small cargo carrier. Built by Wheeler Shipbuilding Corp., Launched in 1944. Pennant No. B7. It was officially stated in May 1960 that this vessel, formerly rated as a transport, was to be converted into a salvage vessel, but in Dec. 1961 it was officially stated that she would in future be a transport ship.

OILERS (Buques Tanques)



PUNTA MEDANOS

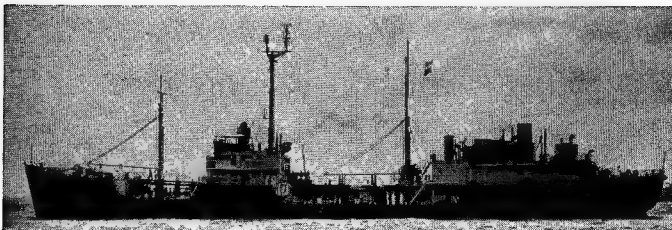
Added 1964, Argentine Navy, Official

I British Built

PUNTA MEDANOS

Displacement: 14,352 tons standard (16,331 tons full load)
 Measurement: 8,250 tons deadweight
 Dimensions: 470 (pp.), 502 (o.a.) x 62 x 28½ feet
 Machinery: Double reduction geared turbines. 2 shafts. S.H.P.: 9,500
 =18 kts. (over 19 kts. attained on trials)
 Boilers: 2 Babcock & Wilcox two-drum integral furnace water-tube
 Oil fuel: 1,500 tons
 Radius: 13,700 miles
 Complement: 99

General
 Built by Swan, Hunter & Wigham Ltd., Wallsend-on-Tyne. Launched on 20 Feb. 1950. Completed on 10 Oct. 1950. A unit of the Argentine Navy available as a training vessel for personnel. She embodied experience gained in previous fleet oilers, and was then the finest equipped and fastest of her type afloat. Fitted for fuelling warships at sea. Boilers built under licence by the Wallsend Slipway & Engineering Company. Steam conditions of 400 lb. per sq. in. pressure and 750 deg F. temperature. Pennant No. B 18.



PUNTA LOYALA

Added 1955, U.S. Navy, Official

2 Ex-U.S. AOG Type

PUNTA DELGADA (ex-Sugarland, ex-Nanticoke, AOG 66)
PUNTA LOYOLA (ex-Capitan, ex-Klickitat AOG 64)

Displacement: 5,930 tons standard (6,090 tons full load)
 Dimensions: 325 x 48½ x 20 feet
 Machinery: Westinghouse diesel. 1 shaft. B.H.P.: 1,400=11½ kts.
 Oil fuel: 150 tons
 Radius: 9,000 miles
 Complement: 72

General
 Bear names of geographical locations. U.S.M.S. type TI-M-BT1. Both built by St. John's River S.B. Co. Launched on 7 Apr. 1945 and 24 Mar. 1945, respectively.

Recent Disposal
 Sister ship *Punta Ninfas* (ex-Black Bayou, ex-Michigamme, AOG 65) was scrapped in 1964, it is officially stated.

I U.S. Built

PUNTA RASA (ex-Salt Creek)

Displacement: 2,055 tons standard (2,253 tons full load)
 Dimensions: 221 x 37 x 13½ feet
 Machinery: Diesel. 1 shaft. B.H.P.: 800=10 kts.
 Oil fuel: 60 tons
 Radius: 3,500 miles
 Complement: 37

General
 Built by Barnes Dulath S.B. Co. Launched in 1943 and completed in 1944. Pennant No. B 14. Commissioned in 1947. Named after Cape. U.S. M.C. type TI-M-A2.

Recent Disposals
 Sister ship *Punta Ciguena* (ex-Sulphur Bluff) was officially deleted from the list in 1961.

I Belgrano Type

PUNTA ALTA

Displacement: 1,600 tons standard (1,900 tons full load)
 Measurement: 800 tons deadweight
 Dimensions: 210 x 33½ x 12½ feet
 Machinery: Diesel. 1 shaft. B.H.P.: 1,850=8½ kts.
 Oil fuel: 146 tons
 Radius: 4,700 miles

General
 Built at Puerto Belgrano. Launched in 1937. Named after a headland. Pennant No. B 12.

BDI Type
Punta Lara (ex-BDI 10, Q 63, ex-U.S.S. LCIL 688) converted to an oiler, was deleted from the list in 1961.

ICEBREAKER (Rompehielos)



GENERAL SAN MARTIN

1955, Argentine Navy, Official

GENERAL SAN MARTIN

Displacement: 4,854 tons standard (5,301 tons full load)
 Measurement: 1,600 tons deadweight
 Dimensions: 279 x 61 x 21 feet
 Guns: 1—4.1 inch, 2—40 mm. AA. Bofors
 Aircraft: 1 reconnaissance aircraft and 1 helicopter
 Machinery: 4 diesel-electric, 2 shafts. H.P.: 7,100=16 kts.
 Endurance: 37,000 miles
 Oil fuel: 1,100 tons
 Complement: 160

General
 Built by Seebeck Yard of Weser A.G. Launched on 24 June 1954. Completed in Oct. 1954. Used by the Antarctic Institute. Fitted for research. Specially insulated against cold.

TUGS (Remolcadores)

GUAYCURU

Displacement: 368 tons (max.)
 Dimensions: 107½ x 24½ x 12½ feet
 Machinery: Skinner Unaflo engines. I.H.P.: 645=9 kts.
 Boiler: Cylindrical (Scottish)
 Oil fuel: 52 tons
 Radius: 2,200 miles at 7 kts.
 Complement: 14

General
 "Quilmes" class tugs built at Rio Santiago, Argentina, in the State Naval Ship-yards. Laid down on 23 Aug. and 15 Mar. 1956, respectively, launched on 27 Dec. 1959 and 8 July 1957 and completed on 29 July and 30 Mar. 1960. Pennant numbers R 33 and R 32.

PEHUENCHE

Displacement: 330 tons
 Dimensions: 105 x 24½ x 12½ feet
 Machinery: Triple expansion. I.H.P.: 600=11 kts.
 Boilers: 2
 Oil fuel: 36 tons
 Radius: 1,200 miles
 Complement: 13

General
 Both built in Rio Santiago Naval Yard. Commissioned for service in 1954.

CHIRIGUANO (ex-U.S. ATA 227)

SANAVIRON (ex-U.S. ATA 228)

DIAGUITA (ex-U.S. ATA 124)

YAMANA (ex-U.S. ATA 126)

Displacement: 689 tons standard (800 tons full load)
 Dimensions: 133½ (w.l.), 143 (o.a.) x 34 x 12 feet
 Guns: 2—20 mm. N.A. AA.
 Machinery: Diesel-electric B.H.P.: 1,850=12½ kts.
 Oil fuel: 154 tons
 Radius: 16,700 miles
 Complement: 49

General
 Ocean Salvage tugs. Built by Livingston Shipbuilding Co., Orange, Texas, U.S.A., in 1945. *Diaguita* and *Yamana* are fitted as rescue ships. All four of above ships bear names of South American Indian tribes.

COMMANDANTE GENERAL IRIGOYEN (ex-U.S.S. *Cahuilla*, ATF 152)

COMMANDANTE GENERAL ZAPIOLA (ex-U.S.S. *Arapaho*, ATF 68)

Displacement: 1,235 tons standard (1,675 tons full load)
 Dimensions: 195 (w.l.), 205 (o.a.) x 38½ x 12 (mean), 15½ (max.) feet
 Guns: 1—3 inch, 4—40 mm. AA. 2—20 mm. AA. originally, but some armaments reduced
 Machinery: 4 sets diesels with electric drive. B.H.P.: 3,000=16½ kts.
 Complement: 85

General
 Former United States fleet ocean tugs of the "Apache" class. Fitted with powerful pumps and other salvage equipment. Both built by Charleston S.B. & D.D. Co., Charleston, S.C. Launched on 2 Nov. 1944 and 22 June 1942, respectively, and completed on 10 Mar. 1945 and 20 Jan. 1943. Transferred to Argentina at San Diego, California, in 1961. Pennant Nos. 41 and 40, respectively.

MATACO

Displacement: 600 tons
 Measurement: 339 tons gross
 Dimensions: 130½ (pp.), 137 (w.l.) 139 (o.a.) x 28½ x 11½ feet
 Machinery: Triple expansion, 2 shafts. I.H.P.: 1,200=12 kts.
 Boilers: 2
 Oil fuel: 95 tons
 Radius: 3,900 miles
 Complement: 34

General
 Both built by Hawthorn Leslie, Ltd., Hebburn-on-Tyne. Launched on 24 Jan. 1928 and 23 Dec. 1927, respectively. Both completed in Mar. 1928.

ONA

Displacement: 615 tons
 Measurement: 345 tons gross
 Dimensions: 134½ x 30 x 11 feet
 Machinery: Triple expansion. I.H.P.: 1,300=12 kts.
 Boilers: 2
 Oil fuel: 115 tons
 Radius: 2,400 miles
 Complement: 34

General
 Built by John I. Thornycroft & Co. Ltd., Woolston, Southampton. Launched in 1913.

Recent Disposal
 The salvage tug *Ranquel* was withdrawn from service and deleted from the list in May 1960.

The salvage tug *Charrua* (ex-U.S. Army LT 224) was officially stricken from the list in 1963. Her sister ship *Guarani* was lost without trace in the Straits of Magellan on 15 Oct. 1958.

ROYAL AUSTRALIAN NAVY

Naval Board

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Frederick C. Chaney, Esq., A.F.C., M.P.

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Naval Attaché in Washington:
Captain E. J. Peel, D.S.C., R.A.N.

Three Year Defence Programme

Modernisation of aircraft carrier *Melbourne*.
Modernisation of destroyers *Vampire* and *Vendetta*.

Construction of fast fleet replenishment ship.
Purchase of two new minesweepers.

Construction of five patrol craft, nine general purpose patrol vessels, and a submarine rescue vessel.

Navy Estimates

1954-55: £A48,165,000	1960-61: £A44,716,000
1955-56: £A48,834,000	1961-62: £A48,019,000
1956-57: £A39,065,000	1962-63: £A48,890,000
1958-59: £A42,401,000	1963-64: £A54,509,000
1959-60: £A42,612,000	1964-65: £A69,212,000
	1965-66: £A95,200,000

Personnel

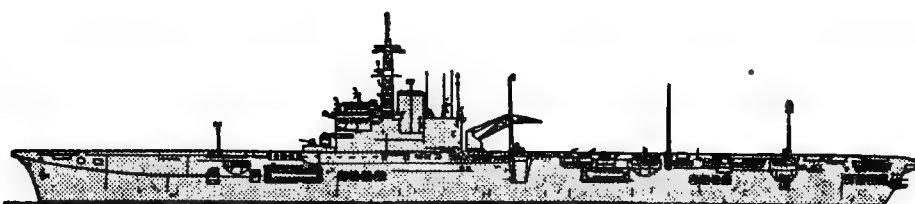
1 January 1960: 10,621 officers and ratings.
1 January 1961: 10,519 officers and ratings.
1 January 1962: 10,889 officers and ratings.
1 January 1963: 11,206 officers and ratings.
1 January 1964: 11,885 officers and ratings.
1 January 1965: 12,822 officers and ratings.

Mercantile Marine

Lloyd's Register of Shipping:
292 vessels of 593,700 tons gross

Silhouettes

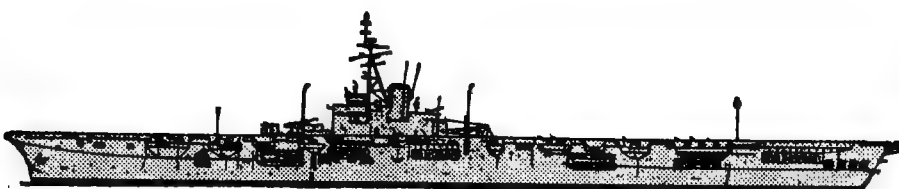
Scale: 150 ft. = 1 inch.



MELBOURNE



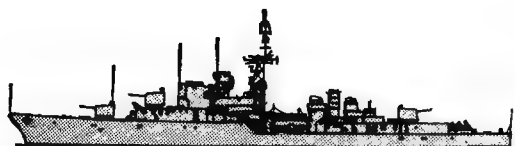
DERWENT, STUART



SYDNEY



PARRAMATTA, YARRA



VAMPIRE



ANZAC



CULGOA



VENDETTA



ARUNTA



BARCOO



TOBRUK



QUIBERON



"RIVER" Class

AIRCRAFT CARRIERS



MELBOURNE

1965, Royal Australian Navy, Official



MELBOURNE

1964, Royal Australian Navy, Official

I Modified "Majestic" Class

MELBOURNE (ex-Majestic)

Pennant No.:	R 21
Deck Letter:	M (ex-Y)
Builders:	Vickers-Armstrongs Ltd. Barrow-in-Furness
Laid down:	15 Apr. 1943
Launched:	28 Feb. 1945
Completed:	8 Nov. 1955
Displacement:	16,000 tons standard (20,000 tons full load)
Dimensions:	Length: 650 (w.l.) 701½ (o.a.) feet. Beam (hull): 80½ feet. Width: 80 (flight deck) 126 (o.a.) feet (including 6 degree angled deck and mirrors). Draught: 25 feet. Hangar: 444 x 52 x 17½ feet. 25—40 mm. Bofors AA.
Guns:	
Aircraft:	8 Gannet turbo-prop anti-submarine aircraft, 16 Westland Wessex anti-submarine helicopters (see Aircraft notes)
Machinery:	Parsons single reduction geared turbines. 2 shafts. S.H.P.: 40,000 =24 kts. Sea speed 23 kts. (max.)
Boilers:	4 Admiralty 3-drum type

Complement: 1,209 to 1,250 (peace), 109 officers (120 to 130 with squadrons), 1,100 to 1,120 ratings 1,450 officers and ratings (war)

General

At the end of the Second World War, when she was still incomplete, work on this ship was virtually brought to a standstill pending a decision as to future naval requirements. When full-scale work was resumed during 1949-55, and after her design had several times been re-cast she underwent reconstruction and modernisation in Great Britain, including the fitting of the angled deck the steam catapult and the mirror deck landing sights, and was transferred to R.A.N. on completion. She was commissioned and renamed at Barrow-in-Furness on 28 Oct. 1955, sailed from Portsmouth on 5 Mar. 1956 and arrived at Freemantle, Australia, on 23 April 1956. She became flagship of the Royal Australian Navy at Sydney on 14 May 1956. She cost £A8,309,000.

Modernisation

Melbourne is to be modernised at a cost of £A10,000,000 including provision of long range detection and height finding radar, Seacat missile systems, and improved habitability.

Engineering

Boilers work at a pressure of 430 lb. per sq. inch and a temperature of 700 degrees Fahrenheit of superheat.

Aircraft

The aircraft complement formerly comprised 8 Sea Venom jet fighters, 17 Gannet turbo-prop anti-submarine aircraft, and 2 Sycamore helicopters.

Fourteen S2E Tracker anti-submarine aircraft are to be purchased from the U.S.A. for Melbourne, as modernised (in service 1967) at a cost of £A17,000,000.

Radar

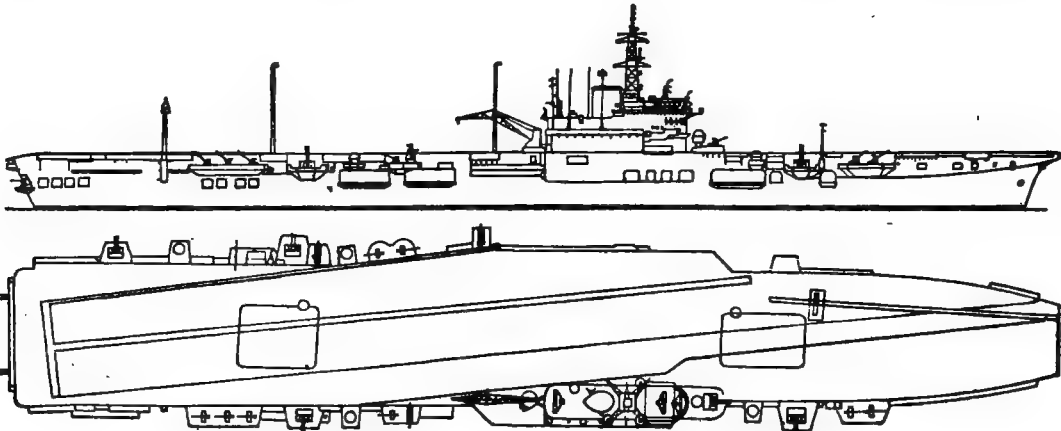
The ship was fitted in 1963 with a Dutch type radar aerial on the foremast similar to that in the Type 12 frigates.

Photographs

A port bow oblique aerial view of Melbourne appears in the 1957-58 to 1964-65 editions, a large port quarter aerial oblique view in the 1962-63 and 1963-64 editions, a port quarter surface view in the 1961-62 edition, a dead overhead aerial view showing angled decl. in the 1956-57 to 1961-62 editions, and a large port bow surface view in the 1955-56 to 1960-61 editions.

Drawing

Starboard elevation and plan as converted with the angled deck. Scale: 128 ft.=1 inch.



Aircraft Carriers-continued



SYDNEY (as troop transport)

1963, Royal Australian Navy, Official

I "Majestic" Class

SYDNEY (ex-Terrible)

Pennant No.:	A 214 (ex-R 17)
Deck Letter:	S (ex-K)
Builders:	H.M. Dockyard, Devonport
Engineers:	Parsons
Laid down:	19 Apr. 1943
Launched:	30 Sep. 1944
Completed:	5 Feb. 1949
Displacement:	14,380 tons standard (19,550 tons full load) as converted to transport
Dimensions:	Length: 630 (pp.), 690½ (flight deck), 698 (o.a.) feet. Beam: 80 feet. Width: 112½ feet (o.a.) Draught: 25 feet
Guns:	4—40 mm. AA. (single mountings)
Machinery:	Parsons single reduction geared turbines. 2 shafts. S.H.P.: 40,000 =24.8 kts.
Bollers:	4 Admiralty 3-drum type
Complement:	544 (34 officers, 510 ratings), nucleus as troops carrier. Naval Reserve will provide balance of ship's company in emergency.

General
This ship was handed over to the Royal Australian Navy on 16 Dec. 1948, accepted for service on 5 Feb. 1949, sailed from Devonport on 12 April and arrived in Australia in May. 1949.

Original Scheme
As an operational aircraft carrier she displaced 15,740 tons standard, carried Seaforce fighters. Firefly anti-submarine and reconnaissance squadrons, with a stowage capacity of 37 machines, mounted 30 Bofors 40 mm. AA. guns, and her complement was 1,100 officers and ratings (peace), 1,300 (war).

Training and Conversion
Formerly employed as a training ship, having been placed in training status in Apr. 1955. It was officially announced on 4 Apr. 1957 that she would have a flying training role, but in Feb. 1958 it was officially stated that she was paying off and was to be immobilised. The ship was converted to a fast military transport in 1962, and was recommissioned in 1963. She also serves as a training ship.



SYDNEY

1964, Royal Australian Navy, Official

Photographs
A starboard bow oblique aerial view of Sydney as an aircraft carrier appears in the 1954-55 to 1961-62 editions, a port quarter surface view in the 1957-58 edition, a starboard broadside view in the 1957-58 to 1962-63 editions, and a starboard quarter oblique aerial

view in the 1958-59 to 1963-64 editions.
Drawing
A plan and port elevation drawing of Sydney, as an aircraft carrier, drawn to a scale of 128 feet=1 inch, appears in the 1949-50 to 1963-64 editions.

GUIDED MISSILE ARMED DESTROYERS

3 U.S. "Charles F. Adams" Class
New Construction

Displacement:	3,370 tons standard (4,500 tons full load)
Dimensions:	420 (w.l.), 440½ (o.a.)×47×15 feet (officially revised figures)
Guns:	2—5 inch, 54 cal. single-mount, rapid fire
Guided weapons:	"Tartar" surface-to-air missile single launcher
A/S weapons:	Long range "Ikara" system with two single launchers
Machinery:	Geared steam turbines. 2 shafts. S.H.P.: 70,000=35 kts.
Bollers:	4
Complement:	333 (21 officers, 312 men) officially revised figures

Name	Builders	Laid down	Launched	Completed
BRISBANE	Defoe Shipbuilding Co., Bay City, Michigan, U.S.A.	15 Feb. 1965	Feb. 1966	To be 1967
HOBBART	Defoe Shipbuilding Co., Bay City, Michigan, U.S.A.	26 Oct. 1962	9 Jan. 1964	Dec. 1965
PERTH	Defoe Shipbuilding Co., Bay City, Michigan, U.S.A.	21 Sep. 1962	26 Sep. 1963	22 May 1965

General
On 6 Jan. 1962, in Washington, United States defence representatives and Australian military officials (on behalf of the Royal Australian Navy) and executives of the Defoe Shipbuilding Company, of Bay City, Michigan, signed a £A12,863,350 contract for the construction of two guided-missile destroyers (shipbuilding cost only).
On 22 Jan. 1963 it was officially announced by the Minister for the Navy in Canberra, Australia, that a third guided-missile destroyer was to be built in the United States for the Royal Australian Navy.
They are the first of their kind for the Australian Navy.
In addition to the "Tartar" missiles, with a range of 15 to 20 miles, these ships will be equipped with the very latest long range anti-submarine warfare weapons.

These versatile ships will be used to escort amphibious forces and to support them after their landings, to work with hunter killer groups in attacking submarines and to protect vital ocean convoys.
As compared with previous destroyers, the ships have greater length overall, more beam and heavier displacement. They have a new hull design with aluminium superstructures. The most recent habitability improvements have been incorporated into their construction, including air conditioning of all living spaces.
Cost: about £A6,400,000 to £A7,000,000 each (with missiles and electronics £A20,000,000 each).

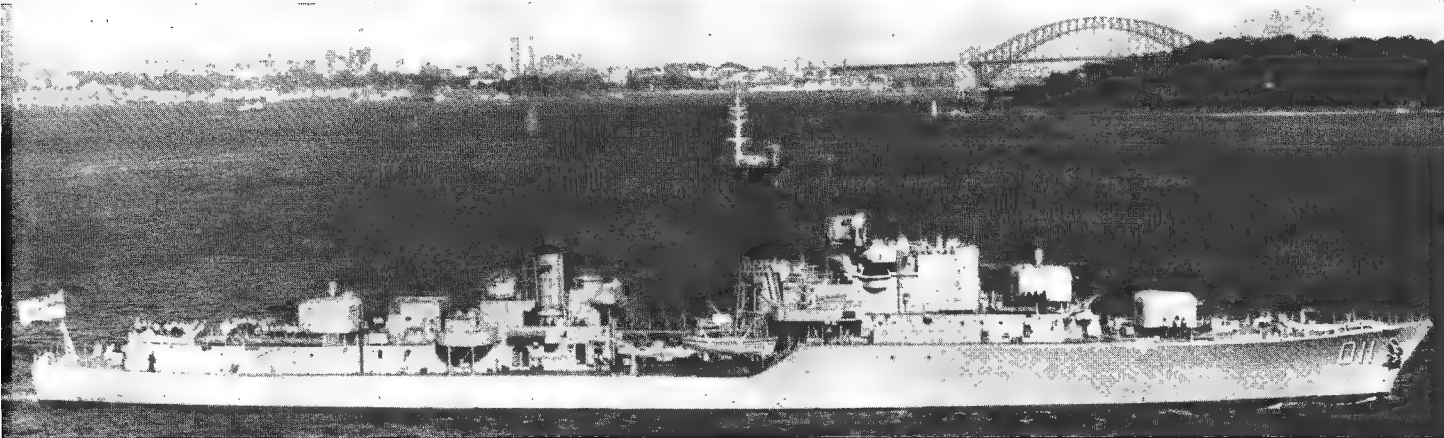
Appearance
For appearance of these ships see "Charles F. Adams" class in the United States section.

DESTROYERS



DUCHESS

1965, Royal Australian Navy, Official



VAMPIRE

1964, courtesy J. C. Jeremy

3 "Daring" Class

- Displacement: 2,800 tons standard (3,600 tons full load)
Dimensions: 366 (pp.), 388½ (o.a.) × 43 × 12½ (mean), feet
Guns: 6—4.5 inch in twin turrets, two forward and one aft, 6—40 mm. Bofors AA.
Tubes: 5—21 inch in quintuple mounting
A/S weapons: Limbo three-barrelled depth charge mortar
Machinery: English Electric geared turbines. 2 shafts. S.H.P.: 54,000=30.5 kts. sea speed
Boilers: 12
Oil fuel: 584 tons
Radius: 3,700 miles at 20 kts.
Complement: 327 officers and ratings

(The above particulars refer to Vampire and Vendetta for slightly different data applying to Duchess, which has Squid instead of Limbo, see under "Daring" class in United Kingdom section)

General

All-purpose ships, equipped for surface engagements anti-aircraft defence, and anti-submarine warfare.

Vampire and Vendetta are the largest destroyers ever built in Australia. They were ordered in 1946. The ships are powerfully equipped for both offensive and defensive purposes and have automatic radar steering.

Their sister ship, Voyager, the prototype of the class, collided with the aircraft carrier Melbourne and sank off the southern coast of New South Wales on the night of 10 Feb. 1964. She was replaced by the British destroyer Duchess, lent to Australia by the United Kingdom for four years.

Modernisation

Vampire and Vendetta are to be modernised at a cost of £A13,000,000, including the installation of Ikara anti-submarine weapons. It is expected that the after 4.5 inch twin gun mounting will be suppressed.

Design

Vampire and Vendetta are of similar design, including all welded construction, to that of "Daring" class, built in Great Britain; but were modified to suit Australian conditions and have "Limbo" instead of "Squid" anti-submarine weapons.

Gunnery

The anti-aircraft gun batteries are laid and fired by radar.

Construction

The superstructure is of light alloy, instead of steel, to reduce weight and thus increase speed.

Name	Pennant No.	Builders	Begun	Launched	Completed
VAMPIRE	D 11	Cockatoo Island Dockyard, Sydney	1 July 1952	27 Oct. 1956	23 June 1959
VENDETTA	D 08	H.M.A. Naval Dockyard, Williamstown	4 July 1949	3 May 1954	26 Nov. 1958
DUCHESS	D 154	John I. Thornycroft & Co., England	2 July 1948	9 Apr. 1951	23 Oct. 1952



VENDETTA

1965, Royal Australian Navy, Official

Photographs

A port bow view of Vendetta appears in the 1960-61 and 1961-62 editions, a port bow view of Vampire in the 1959-60 to 1963-64 editions, a port quarter oblique surface view of Vendetta in the 1962-63 to 1964-65 editions, and a starboard bow oblique aerial view of Duchess in the 1964-65 edition.

Class

Four ships were originally projected, to be named after the R.A.N.'s famous "Scrap Iron Flotilla" of destroyers which won renown in the Mediterranean on the Tobruk ferry run and in other areas in the Second World War, but Waterhen was cancelled in 1954, and Voyager was lost in 1964.



ANZAC

1965, Royal Australian Navy, Official




TOBRUK

Added 1957, Royal Australian Navy, Official

Name: ANZAC		TOBRUK	Guns: 4—4.5 inch, 6—40 mm. AA.	other amenities, modern radar fire control, close range Staag armament (new type of twin 40 mm. Bofors gun mounting) and the latest anti-submarine weapons. <i>Tobruk</i> was placed in Reserve in 1960. <i>Anzac</i> became fleet training ship, with extra deckhouse aft and director removed.
Pennant No. D 59		D 37	Tubes: 10—21 inch (none in <i>Anzac</i>)	
Builders: Williamstown Naval Dockyard		Cockatoo Docks & Eng. Co. Pty. Ltd.	A/S weapons: Squid triple-barrelled depth charge mortar	
Laid down: 23 Sep. 1946		5 Aug. 1946	Machinery Parsons geared turbines, 2 shafts.	
Launched: 20 Aug. 1948		20 Dec. 1947	S.H.P. 50,000=31 kts. (sea speed)	
Completed: 22 Mar. 1951		17 May 1950	Boilers: 2 Admiralty 3-drum type	Gunnery <i>Anzac</i> had the first "Daring" type of 4.5 inch guns and mountings of completely Australian manufacture (weight of each twin mount is approx. 50 tons). They are fully automatic, with a rate of fire of 25 rounds per minute, and an accurate range of over ten miles, firing a shell weighing 53 lb. The 4.5 inch guns for <i>Tobruk</i> were imported from Great Britain.
Displacement: <i>Anzac</i> 2,440 tons, <i>Tobruk</i> 2,436 tons standard (3,450 tons full load)			Complement: 290	
Dimensions: 355 (pp.) 379 (o.a.) x 41 x 13½ (mean) feet			General Ordered in 1945-46. Similar to the "Battle" class destroyers in the Royal Navy, but several alterations were incorporated, including sleeping accommodation for officers and men fore and aft, improved mess layout and	

I "Tribal" Class

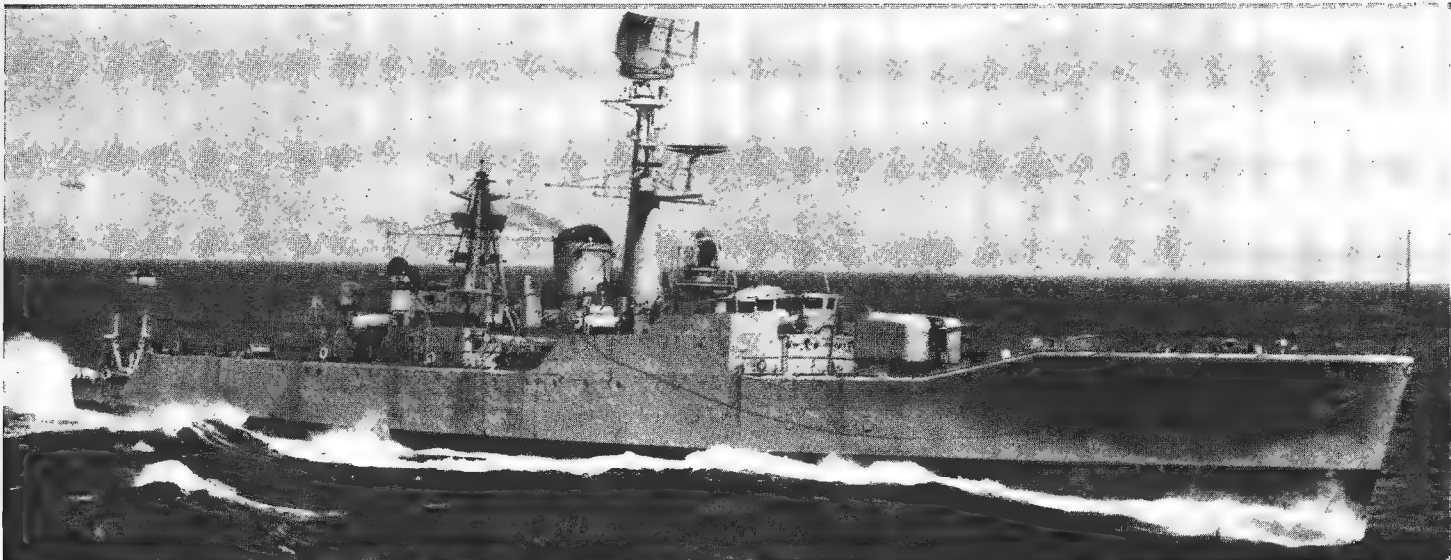
ARUNTA

Pennant No.:	D 130		Royal Australian Navy, Official
Builders:	Cockatoo Docks & Engineering Co. Pty. Ltd.		
Laid down:	15 Nov. 1939		
Launched:	30 Nov. 1940		
Completed:	3 Mar. 1942		
Displacement:	2,012 tons standard (2,700 tons full load)		
Dimensions:	355½ (pp.), 377 (o.a.) × 36½ × 13½ (mean) feet		
Guns:	4—4.7 inch, 2—4 inch, 8—40 mm. AA.		
Tubes:	4—21 inch		
A/S weapons:	Squid triple-barrelled depth charge mortar aft in "Y" position		
Machinery:	Parsons geared turbines S.H.P.: 44,000=32 kts. sea speed		
Boilers:	3 Admiralty 3-drum type		
Complement:	293		

General
On modernisation, her deckhouse was extended aft, she was re-armed with different pattern guns and A/S weapons and reclassified as an anti-submarine destroyer. Placed in reserve in 1957.

Recent Disposals
Of this class, of originally three ships, *Boatan* was declared for disposal in 1957, and has since been scrapped, and *Warramunga* was declared for disposal in 1962.

ANTI-SUBMARINE FRIGATES



DERWENT 1964, Royal Australian Navy, Official

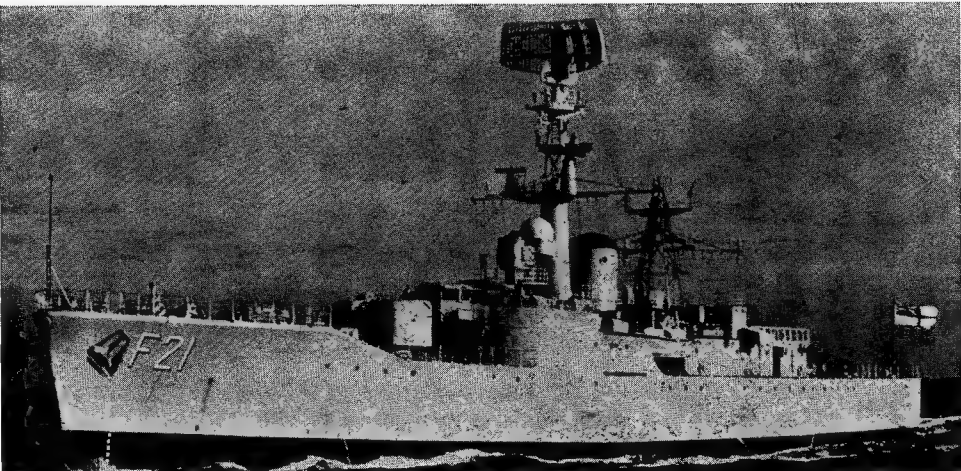
4 + 2 Type 12

Displacement: 2,100 tons standard (2,700 tons full load)
Dimensions: 360 (pp.), 370 (o.a.)×41×12½ (mean) feet
Guns: 2—4.5 inch d.p.,
Guided weapons "Seacat" close range surface-to-air weapons
A/S weapons: 2 Limbo three-barrelled depth bomb mortars (1 in Derwent and Stuart which has Ikara)
Machinery: Geared turbines, 2 shafts. S.H.P.: 30,000=30 kts.
Boilers: 2 Babcock & Wilcox
Complement: 250

Name	Pennant No.	Builders	Launched	Completed
DERWENT	F 22	Williamstown Naval Dockyard, Melbourne	17 Apr. 1961	Apr. 1964
PARRAMATTA	F 05	Cockatoo Island Dockyard, Sydney	31 Jan. 1959	July 1961
STUART	F 21	Cockatoo Island Dockyard, Sydney	8 Apr. 1961	June 1963
YARRA	F 07	Williamstown Naval Dockyard, Melbourne	30 Sep. 1958	July 1961
SWAN		Williamstown Naval Dockyard, Melbourne		
TORRENS		Cockatoo Island Dockyard, Sydney		

Construction
The design of Parramatta and Yarra is generally similar to that of the British Type 12 anti-submarine frigates, but it was modified by the Royal Australian Navy to incorporate improvements in equipment and habitability. The enclosed tower foremast differs from that in "Rothesay" class frigates in the Royal Navy. Derwent and Stuart differ considerably. Stuart is the first fitted with the Ikara anti-submarine guided missile, trial ship for the system. Derwent is the first R.A.N. ship to be fitted with "Seacat". Both ships are fitted with variable depth sonar.
The two new ships under construction, Swan and Torrens, laid down in Feb. and May 1965, respectively, are now being officially classed as Modified Type 12 Destroyer Escorts. (For about 3 months the flag superior of Type 12 and Type 15 frigates was changed to DE, Derwent and Stuart carried DE numbers for a while but reverted to F).

Photographs
Photographs of Parramatta appear in the 1961-62 to 1963-64 editions, and of Yarra in the 1962-63 edition.



STUART 1964, Royal Australian Navy, Official

FAST ANTI-SUBMARINE FRIGATES (ex-Destroyers)

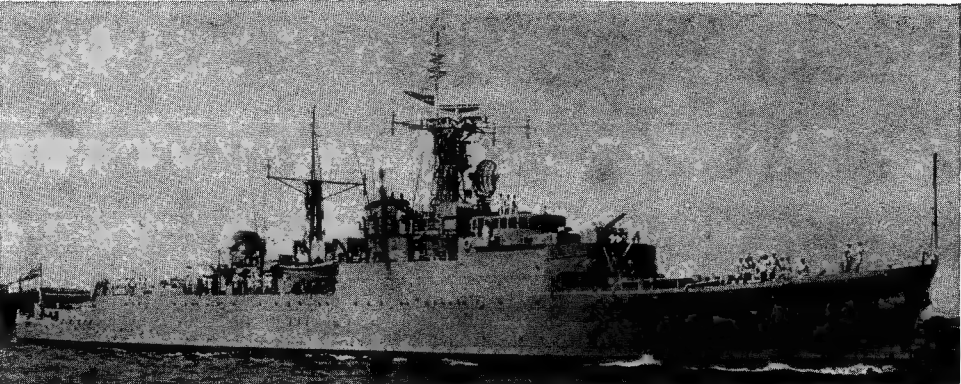
3 "Queenborough" Class

(Fully Converted from Destroyers)

Displacement: 2,020 tons standard (2,700 tons full load)
Dimensions: 358½×35½×13½ (mean) feet
Guns: 2—4 inch (twin-mount), 2—40 mm., Bofors AA.
A/S weapons: 2 Limbo three-barrelled depth charge mortars
Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 40,000=31.25 kts. sea speed
Boilers: 2 Admiralty 3-drum type
Complement: 220 (war)

Name	Pennant No.	Builders	Laid down	Launched	Completed
QUEENBOROUGH	F 02	Swan, Hunter & W. R. Ltd., Wallsend	6 Nov. 40	16 Jan. 42	10 Dec. 42
QUIBERON	F 03	J. Samuel White & Co. Ltd., Cowes	14 Oct. 40	31 Jan. 42	22 July 42
QUICKMATCH	F 04	J. Samuel White & Co. Ltd., Cowes	6 Feb. 41	11 Apr. 42	30 Sep. 42

General
Formerly in the Royal Navy. Lent to the Royal Australian Navy in 1943 (Quiberon, Quickmatch) and 1945 (Quadrant, Quality, Queenborough). Transferred permanently in June 1950 when it was announced they would be converted to fast anti-submarine frigates similar to the British Type 15, the conversions being effected at Cockatoo Island and Williamstown dockyards, but only four of the ships were reconstructed (Quality was not converted, see Recent Disposal note). Quadrant completed conversion and re-commissioned on 16 July 1953 (now discarded). Queenborough on 7 Dec. 1954, Quickmatch on 23 Sep. 1955, and Quiberon on 18 Dec. 1957.
Photographs
A photograph of Quadrant appears in the 1954-55 to 1957-58 editions, of Quiberon in the 1958-59 and 1959-60 editions, and Quickmatch in the 1957-58 to 1961-62 editions. A larger photograph of Queenborough appears in the 1960-61 to 1964-65 editions.



QUIBERON 1965, courtesy Mr. John C. Jeremy

Recent Disposals
Of the five ships of this class, Quality not converted from a destroyer into a fast anti-submarine frigate, was declared for disposal in 1957, and Quadrant early in 1962. Quickmatch was paid off to reserve in Apr. 1963, Queenborough in June 1963, and Quiberon in 1964.

FRIGATES

I Australian "Bay" Type

CULGOA (ex-Macquarie)
Pennant No.: F 408
Builders: Williamstown Naval Dockyard, Melbourne
Laid down: 15 July 1943
Launched: 22 Sep. 1945
Completed: 17 Dec. 1946
Displacement: 1,537 tons standard (2,187 tons full load)
Dimensions: 283 (pp.), 301 (o.a.) x 36½ x 12½ (mean) feet
Guns: 4—4 inch, 5—40 mm. AA.
A/S weapons: 1 hedgehog, 4 D.C.T.
Machinery: Triple expansion, 2 shafts, I.H.P.: 5,500—19 kts.
Boilers: 2 Admiralty 3-drum type
Complement: 177
General
In operational reserve. Accommodation ship for H.M.A.S. Waterhen (base for minesweepers), Sydney.
Recent Disposals
Of three sister ships Condamine was officially declared for disposal in 1960, and Murchison and Shoalhaven early in 1962.

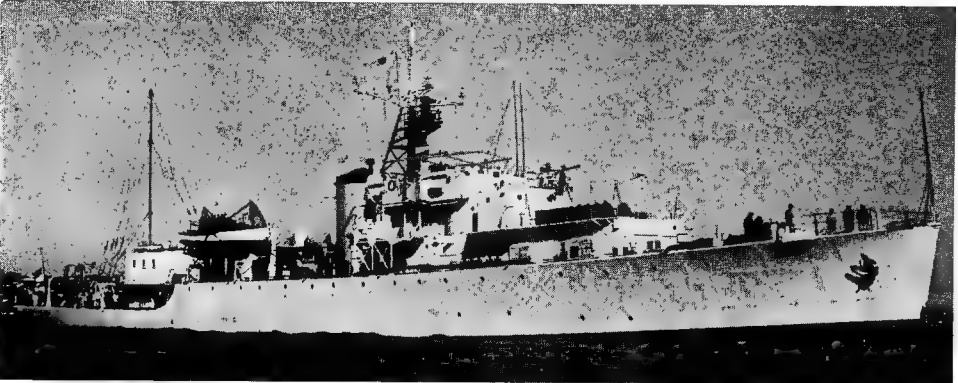


CULGOA (before alteration to minesweeper depot ship) 1963, Royal Australian Navy, Official

3 Australian "River" Class

Displacement: 1,489 tons standard, Barcoo 1,477 tons standard (2,200 tons full load)
Dimensions: 283 (pp.), 301½ (o.a.) x 36½ x 12½ (mean) feet
Guns: 1—40 mm. AA. (4 inch guns removed)
A/S weapons: The 2 Squid triple-barrelled depth charge mortars in "B" position, were removed
Machinery: Triple expansion, 2 shafts, I.H.P.: 5,500—20 kts.
Boilers: 2 Admiralty 3-drum type
Complement: 183
General
All are of "River" design. Barcoo, Diamantina and Gascoyne were converted in 1959-60 for survey and oceanographic research duties. The conversion included the provision of special laboratories and the fitting of Gascoyne with a helicopter platform. Lachlan, employed on surveying duties, is loaned to the Royal New Zealand Navy for hydrographic work and oceanographic research. Barcoo was paid off into reserve in Feb. 1964.

Name	Pennant No.	Builders	Laid down	Launched	Completed
BARCOO	F 175	Cockatoo Docks and Engineering Co.	21 Oct. 42	26 Aug. 43	17 Jan. 44
DIAMANTINA	F 377	Walkers Ltd., Maryborough, Queensland	12 Apr. 43	6 Apr. 44	27 Apr. 45
GASCOYNE	F 354	Mort's Dock and Engineering Co., Sydney	4 June 42	20 Feb. 43	20 Dec. 43



BARCOO 1963, Royal Australian Navy, Official

Gunnery
Forward 4-inch gun was in "A" position with 40 mm. gun superimposed.
Photographs
A photograph of Macquarie appears in the 1953-54 to 1957-58 editions, and of Hawkesbury in the 1954-55 to 1959-60 editions.
Recent Disposals
Of four sister ships Burdekin and Hawkesbury were officially declared for disposal in 1960, and Barwon and Macquarie early in 1962.
Disposals of "Swan" class frigates
Swan, latterly used as a cadet training ship, was paid off in Nov. 1962 and put up for sale in Apr. 1964. Warrego, recently employed on surveying service, was paid off into reserve in Aug. 1963 and put up for sale in Apr. 1965.
Ocean Minesweepers
The last four ocean minesweepers of the "Bathurst" class were Castlemaine, Immobile training ship at Flinders Naval Depot, Colac, now a tank cleaning vessel, Mildura and Wagga. These were survivors of a group of 32, four of which were given to New Zealand. For names and disposals of the remaining ships see 1961-62 edition.



GASCOYNE (converted for survey, with helicopter platform) 1960, Royal Australian Navy, Official

SUBMARINES

4 British "Oberon" Class
New Construction

ONSLOW OTWAY OVENS OXLEY
Builders: Scotts' Shipbuilding & Engineering Co. Ltd., Greenock.
Displacement: 1,610 tons standard, 2,030 tons surface, 2,410 tons submerged

Dimensions: 295½ (o.a.), 241 (pp.) x 26½ x 18 feet
Tubes: 8—21 inch for homing torpedoes
Machinery: Admiralty Standard Range diesels. Electric drive
Complement: 68 (6 officers, 62 ratings)
General
It was officially announced by the Minister for the Navy in Canberra, Australia, on 22 Jan. 1963 that four

submarines of the "Oberon" class were to be built in British shipyards under Admiralty supervision at an overall cost of £A5,000,000 each. Delivery date for the first, laid down on 2 July 1964, is Dec. 1966, with deliveries of the other three spread over the next 3 years.
Submarines of the Fourth Submarine Squadron of the Royal Navy are based at Sydney, Australia, for anti-submarine training.

COASTAL MINESWEEPERS

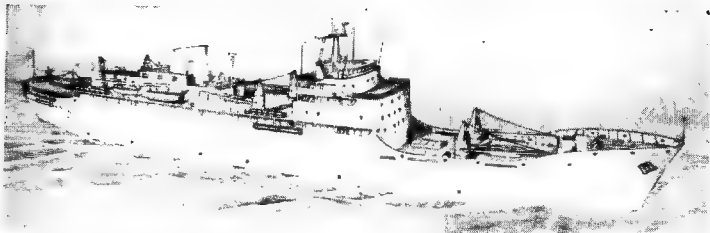
6 "Ton" Class

CURLEW (ex-H.M.S. Chediston, ex-Montrose) **IBIS** (ex-H.M.S. Singleton)
GULL (ex-H.M.S. Swanston) **SNIPER** (ex-H.M.S. Alcaston)
HAWK (ex-H.M.S. Somerleyton, ex-Gamston) **TEAL** (ex-H.M.S. Jackson)
Displacement: 360 tons standard (425 tons full load)
Dimensions: 140 (pp.), 152 (o.a.) x 28½ x 8½ feet
Guns: 2—40 mm. Bofors AA.
Machinery: Diesels. 2 shafts. B.H.P.: 3,000—15 kts. (max.)
Complement: 3 officers, 2 ratings
General
Purchased from Britain in 1961, and modified in British dockyards to suit Australian conditions. Turned over to the Australian Navy, commissioned and re-named in Britain during summer 1962. Mirreles diesels were replaced by Napier Deltic, air conditioned and fitted with stabilisers. Sailed from Portsmouth to Australia on 1 Oct. 1962. Constitute the 16th Minesweeping Squadron.
New Programme
Two new minesweepers are being purchased from Britain (in service 1968).



HAWK 1963, Royal Australian Navy, Official

ESCORT MAINTENANCE SHIP



ESCORT MAINTENANCE SHIP 1964, R.A.N., Official

I New Construction

Displacement: 15,000 tons (official figure)
Dimensions: 515½×67½ feet
Aircraft: 1 helicopter
Machinery: 2 Scott-Sulzer 6-cylinder turbo-diesel engines, 2 shafts. B.H.P.: 14,400
Complement: 478 officers and ratings

Construction
Ordered from Cockatoo Docks & Eng. Co. Pty. Ltd., Sydney on 11 Sep. 1963 and laid down in June 1964 for launching in Sep. 1965 and completion in 1967. Designed to maintain destroyers and frigates and advanced weapons systems, including guided missiles. She will have a helicopter flight deck and will be defensively armed. High standard of habitability.

SEAWARD DEFENCE BOATS



SDB 1321 1957, R.A.N., Official

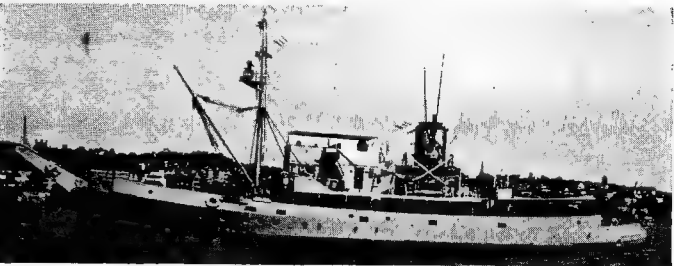
SDB 1321 SDB 1324 SDB 1325

Displacement: 47 tons standard (58 tons full load)
Dimensions: 80½ (o.a.)×16½×5½ feet
Guns: 1—40 mm. AA.
Machinery: 2 Buda diesels, 2 shafts. B.H.P.: 390 (max.)=11 kts.
Complement: 12

General
Originally known as Harbour Defence Motor Launches (HDML) and afterwards as Seaward Defence Motor Launches (SDML). 1321 was modified with a two berth C.O.'s cabin added and covered bridge in place of an open bridge. SDML 1322 was stricken off in 1953. Remaining four were redesignated Seaward Defence Boats (SDB) in 1957. SDB 1327 was stricken from the list in 1960.

New Construction
Five patrol craft for the formation of a New Guinea coastal security force, and nine general purpose patrol vessels for Malaysian waters, are to be built.

BOOM DEFENCE VESSELS



KIMBLA 1957, R.A.N., Official

KIMBLA

Displacement: 750 tons standard (1,002 tons full load)
Dimensions: 150 (pp.), 179 (o.a.)×32×12 (mean) feet
Guns: 1—40 mm. AA., 2—20 mm. AA.
Machinery: Triple expansion. Oil fuel. 10 kts.
Complement: 32

Construction
Built as a boom defence vessel by Walkers Ltd., Maryborough. Laid down on 4 Nov. 1953. Launched 23 Mar. 1955. Completed on 27 Mar. 1956. Converted to a Trials Vessel in 1959.

2 "Kangaroo" Class

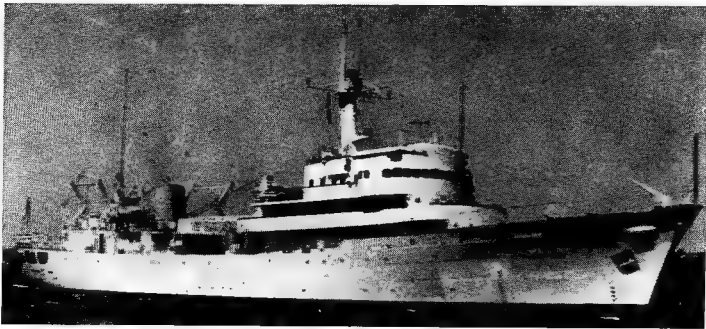
Name	Pennant No.	Laid down	Launched	Completed
KANGAROO	P 80	15 Nov. 39	4 May 40	26 Sep. 40
KOALA	P 69	21 June 39	4 Nov. 39	7 Feb. 40

Displacement: 768 tons standard (971 tons full load)
Dimensions: 150 (pp.), 178½ (o.a.)×32½×11½ (mean) feet
Guns: 1—40 mm. AA.
Machinery: Triple expansion. I.H.P.: 914=11 kts.
Boilers: 2
Oil fuel: 151 tons
Complement: 31

General
Similar to the "Bar" type boom defence vessels in the Royal Navy. Both in reserve. A photograph of *Karang* appears in the 1957-58 edition.

Recent Disposals
Of the "Kangaroo" class, *Karang* was officially deleted from the list in 1965. *Kookaburra*, of the "Net" type formerly in the Royal Navy, was also stricken in 1965.

SURVEY SHIPS



MORESBY 1964, Australian Consolidated Press

MORESBY

Displacement: 2,000 tons standard (2,500 tons full load)
Dimensions: 284½×42 feet
Guns: 2—40 mm. Bofors AA. (single mountings)
Aircraft: 1 Westland Scout helicopter
Machinery: Diesel-electric with twin screws
Complement: 130 officers and ratings

Construction
The Royal Australian Navy's first specially designed survey ship. Built at the State Dockyard, Newcastle, New South Wales, at a cost of £A2,000,000. Launched on 7 Sep. 1963 and commissioned on 6 Mar. 1964. Fitted with the most modern hydrographic equipment.

PALUMA

Displacement: 340 tons (officially revised figures)
Dimensions: 120×24×6½ (mean) feet
Machinery: Diesel. Speed=9.5 kts.

Construction
A motor stores lighter of war construction converted into a small survey vessel in 1958. Officially rated as a Survey Ship (Small).

FAST FLEET REPLENISHMENT OILER



SUPPLY 1963, Wright & Logan

SUPPLY (ex-Tide Austral)

Displacement: 15,000 tons standard (26,000 tons full load)
Measurement: 17,600 tons deadweight, 11,200 tons gross
Dimensions: 550 (pp.), 583 (o.a.)×71×32 (max.) feet
Guns: 6—40 mm. AA. (2 twin forward, 2 single aft)
Machinery: Double reduction geared turbines. S.H.P.: 15,000=17 kts.
Complement: 13 officers, 120 ratings

General
Built by Harland & Wolff, Ltd., Belfast. Launched, 1 Sep. 1954, completed March 1955. Sister ship of the British "Tide" Class Fast Fleet Replenishment Ships. Lent to Great Britain until Sep. 1962, when *Tide Austral* was re-named H.M.A.S. *Supply* and commissioned in the Royal Australian Navy (she was formerly a Royal Fleet Auxiliary) wearing the White Ensign and commanded and manned by R.A.N. personnel, at Portsmouth on 1 Sep. 1962, and sailed for Australia on 1 Oct. 1962.

New Construction
The construction of a fast fleet replenishment ship with some provision for the carrying of oil fuel is to be begun in 1966-67 and completed in 1970. Almost certainly to be built in Australia.

GENERAL PURPOSE VESSELS

BANKS **BASS**

Displacement: 90 (pp.), 101 (o.a.)×22×8 (mean) feet
Machinery: Diesel. Speed=10 kts.
Complement: 16

General
"Explorer" class. Of all steel construction. Banks was fitted for fishery surveillance and Bass for surveying, but both were transferred to other duties.

Recent Disposals
The general purpose vessels GPV 957, GPV 958, GPV 961, GPV 962 (*Walrus*), GPV 968 (*Tallarook*) and *Warren*, were officially deleted from the list in 1964.

FLEET TUGS

SPRIGHTLY

Displacement: 570 tons standard (800 tons full load)
Dimensions: 143×34½×12½ (mean) feet
Guns: 3—40 mm. AA.
Machinery: 2 diesels, 2 electric motors. B.H.P.: 4,000= 12 kts.
Oil fuel: 170 tons
Complement: 43

General
Built at Orange Texas U.S.A. Laid down on 6 June 1942, launched on 7 Aug. 1942 and completed on 23 Nov. 1942. Engines controllable from bridge. To be converted as an interim submarine rescue vessel until the projected new submarine rescue vessel is completed about 1970.

Bronzewing DT 922 **EMU DT 931**

Displacement: 250 tons
Dimensions: 98½ (o.a.)×21½×7½ (mean) feet
Machinery: Diesel. 1 shaft. B.H.P.: 480=9.5 kts.

General
Both built by Mort's Dock, Sydney. Launched on 2 Feb. 1946 and 25 June 1946, respectively. *Emu* in reserve.

BELGIUM

Administration

The Marine Militaire (Force Navale) is attached to the Ministry of National Defence.
Chief of Naval Staff:
Captain L. Lurquin.

Naval, Military and Air Attaché in London:
Colonel J. F. Biot.
Naval, Military and Air Attaché in Washington:
Major General Count Alfred Cornet
d'Elzies de Peissant.

Personnel

1965: 250 officers and 5,000 men
Mercantile Marine
Lloyd's Register of Shipping:
213 vessels of 796,133 tons gross

COASTAL ESCORTS (Escorteurs Cotiers)

4 Ex-British "Algerine" Class

Displacement: 1,040 tons (1,335 tons full load)
Dimensions: 212½ (pp.), 221 (w.l.), 225 (o.a.) x 35½ x 11 feet
Guns: 1—4 inch, 4—40 mm. AA. (8—20 mm. AA. in A. F. Dufour and G. Lecointe)
A/S weapons: 4 D.C.T., 2 D.C.R. (1 Hedgehog in A. F. Dufour and G. Lecointe)
Machinery: Geared turbines. (Triple expansion in A. F. Dufour and G. Lecointe). 2 shafts. S.H.P.: 2,000 = 16 kts.
Boilers: 2, of 8-drum type
Oil fuel: 235 tons
Radius: 4,000 miles at 10 kts.
Complement: 101

General
Formerly British ocean minesweepers. Officially reclassified as coastal escorts in 1959. *De Brouwer* and *De Moor* are tropicalised for service in African waters. *Dufour* (ex-Winnipeg) and *G. Lecointe* (ex-Wallaceburg) were transferred from Canada at Esquimalt, B.C. and Sydney, Nova Scotia, respectively.



A. F. DUFOUR

1963, Belgian Navy, Official

Name	Pennant No.	Builders	Laid down	Launched	Completed	Transferred
A. F. DUFOUR (ex-H.M.C.S. Winnipeg)	F 903	Port Arthur Shipbuilding Co., Ontario	19 Jan. 1942	19 Sep. 1942	19 Jan. 1943	7 Aug. 1959
DE BROUWER (ex-H.M.S. Sparker)	F 904	Harland & Wolff Ltd., Belfast	22 Sep. 1942	20 Apr. 1943	9 July 1943	25 Feb. 1953
DE MOOR (ex-H.M.S. Rosario)	F 905	Harland & Wolff Ltd., Belfast	22 Sep. 1942	3 Apr. 1943	20 Aug. 1943	13 Jan. 1953
G. LECOINTE (ex-H.M.C.S. Wallaceburg)	F 901	Port Arthur Shipbuilding Co., Ontario	17 Mar. 1942	17 Dec. 1942	17 Mar. 1943	31 July 1959

OCEAN MINESWEEPERS (Rated as *Dragueurs de Haute Mer*)

5 U.S. MSO (Ex-AM) Type 498

Displacement: 720 tons light (780 tons full load)
Dimensions: 165 (w.l.), 172½ (o.a.) x 35 x 9½ (11 max.) feet
Guns: 1—40 mm. Bofors AA.
Machinery: 2 General Motors diesels, 2 shafts.
B.H.P.: 1,600=14 kts. (max.)
Oil fuel: 50 tons
Range: 2,400 miles at 12 kts.
Complement: 72

General
U.S. AM 498 class minesweepers. Wooden hulls and non-magnetic equipment. Capable of sweeping all modern mines of any type. Diesels of non-magnetic stainless steel alloy. Controllable pitch propellers. The names given to *Artevelde* and *Breydel* commemorate those of twelfth-century Flemish patriots.

Delivery
Artevelde was transferred at Seattle, Wash., U.S.A. under the Mutual Defense Assistance Program. *Breydel* was also delivered at Seattle. *Van Haverbeke* berthed at Ostend on 2 May 1961. *F. Bovesse* in Sep. 1957. *G. Truffaut* in Aug. 1957. *Breydel* in Sep. 1956, and *Artevelde* in June 1956.



ARTEVELDE

1963, A. & J. Pavia

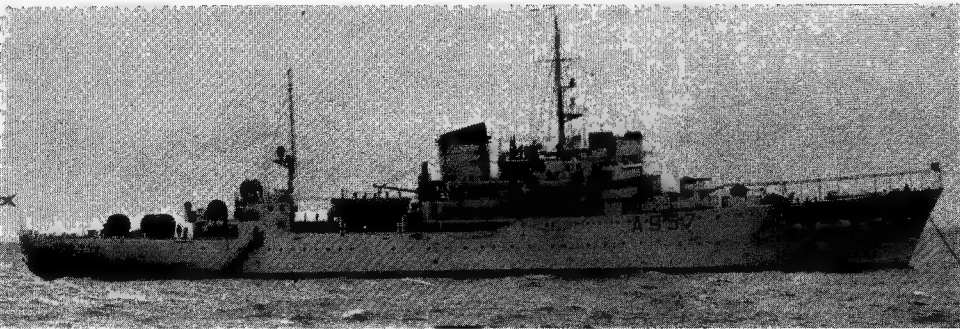
Name	Pennant No.	Builders	Laid down	Launched	Completed	Transferred
ARTEVELDE (ex-MSO 503, ex-AM 503)	M 907	Tacoma Boatbuilding Co., Tacoma, Wash.	1953	19 June 1954	15 Dec. 1955	15 Dec. 1955
BREYDEL (ex-MSO 504, ex-AM 504)	M 906	Tacoma Boatbuilding Co., Tacoma, Wash.	1954	25 Mar. 1955	15 Feb. 1956	15 Feb. 1956
F. BOVESSE (ex-MSO 516, ex-AM 516)	M 909	Tampa Shipbuilding Co. Inc., Tampa, Fla.	1954	1956	25 Jan. 1957	25 Jan. 1957
G. TRUFFAUT (ex-MSO 515, ex-AM 515)	M 908	Tampa Shipbuilding Co. Inc., Tampa, Fla.	1955	1955	12 Oct. 1956	12 Oct. 1956
VAN HAVERBEKE (ex-MSO 522)	M 902	Petersen Builders Inc., Sturgeon Bay, Wisc.	2 Mar. 1959	29 Oct. 1959	7 Nov. 1960	9 Dec. 1960

SUPPORT SHIPS (*Bâtiments Logistiques*)

Ex-German Submarine Support Ship

KAMINA (ex-Royal *Harold*, ex-Herman von Wissmann)
Displacement: 3,900 tons standard (5,750 tons full load)
Dimensions: 344½ (pp.), 374 (o.a.) x 48½ x 18½ feet
Guns: 1—3 inch, 1—40 mm. AA., 2—20 mm. AA.
Machinery: 1 B. & W. Diesel, 1 shaft.
B.H.P.: 3,600=15 kts. (cruising)
Radius: 10,000 miles at economical speed
Complement: 175

General
Built in 1940 at Hoboken, Antwerp, by J. Cockerill for Poland. Seized by Germans and used as support ship for U-boats in Norway. Transferred to Britain 1945, and finally given to Belgium in Oct. 1950. Pennant No. A 957 (ex-AP 907.) Operational as *Transport de Troupes* until 1960. Re-rated *Bâtiment Logistique* et *Navire d'Entraînement* early in 1962.



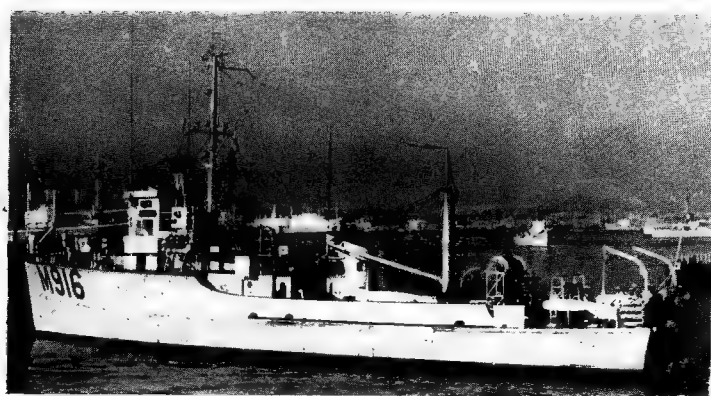
KAMINA

1964, courtesy Godfrey H. Walker, Esq.

Ex-British Ocean Minesweeper
ADRIEN DE GERLACHE (ex-H.M.S. *Liberty*)

General
Former British ocean minesweeper of the "Algerine" class, subsequently reclassified as a coastal escort and again re-rated as a *bâtiment logistique* in 1960. See full particulars and photograph in the 1959-60 edition. Pennant No. A 954.

COASTAL MINESWEEPERS



BASTOGNE

1965, Giorgio Ghiglione



ROCHEFORT

1961, Skyfotos

(Dragueurs de Mines Cotiers)

26 U.S. MSC (ex-AMS) Type 60

M 915 ARLON (ex-MS-C 104)	M 912 LIER (ex-MS-C 63)
M 916 BASTOGNE (ex-MS-C 151)	M 913 MAASEIK (ex-MS-C 78)
M 923 BLANKENBURGHE (ex-MS-C 170)	M 922 MALMEDY (ex-MS-C 154)
M 917 CHARLEROI (ex-MS-C 152)	M 926 MECHELEN
M 925 DE PANNE (ex-MS-C 131)	M 932 NIEUWPOORT
M 910 DIEST (ex-MS-C 77)	M 930 ROCHEFORT
M 920 DIKSMUIDE (ex-MS-C 65)	M 914 ROESLAERE (ex-MS-C 103)
M 911 EEKLO (ex-MS-C 101)	M 918 ST. NIKLAAS (ex-MS-C 64)
M 929 HEIST	M 919 ST. TRUIDEN (ex-MS-C 169)
M 921 HERVE (ex-MS-C 153)	M 297 SPA
M 931 KNOCKE	M 928 STAVELOT
M 933 KOKSIJDE	M 934 VERVIERS (ex-MS-C 259)
M 924 LAROCHE (ex-MS-C 171)	M 935 VEURNE (ex-MS-C 260)

Displacement: 330 tons light (390 tons full load)
 Dimensions: 139 (pp.), 144 (o.a.) \times 27 $\frac{1}{2}$ \times 7 $\frac{1}{2}$ to 8 $\frac{1}{2}$ feet
 Guns: 2—20 mm. (twin mount)
 Machinery: 2 G.M. Diesels. 2 shafts. B.H.P.: 880=13.5 kts. (max.)
 Oil fuel: 28 tons
 Range: 2,700 miles at economical speed (10.5 kts.)
 Complement: 40

General

Motor minesweepers of wooden construction. New type of vessel constructed throughout of material with the lowest possible magnetic attraction to attain the greatest possible safety factor when sweeping for magnetic mines. M 910-925, 934 and 935 were built in U.S.A., under MDAP, and M 926-933 of same type were built in Belgium under MAP with machinery and armament from U.S.A. M 910 (ex-MS-C 77, ex-AMS 77) turned over 12 May 1953, at Boston. M 919 (ex-MS-C 169 ex-AMS 169) turned over 25 Feb. 1954, at New York Naval Shipyard, Brooklyn. M 925 (ex-MS-C 131, ex-AMS 131) transferred 28 Oct. 1955. M 934 (ex-MS-C 259) turned over 19 June 1956. M 935 (ex-MS-C 260) was transferred on 7 Sep. 1956. M 926 to 933 were all laid down in 1953-54 and launched and completed in 1954-55.

Recent Disposal

The research ship Eupen (ex-Eureka, ex-BYMS 11, ex-Young Joe), former coastal minesweeper, was officially deleted from the list in 1964 as she had become obsolete.

INSHORE MINESWEEPERS

(Dragueurs de Mines de Petits Fonds)

16 MSI "Herstal" Class

M 485 ANDENNE (ex-MSI 97) May 1958	M 477 OUDENAERDE May 1958
M 484 DINANT (ex-MSI 96) 5 Apr. 1958	M 483 OUGREE (ex-MSI 95) 16 Nov. 1957
M 471 HASSELT 17 Nov. 1956	M 480 SERAING (ex-MSI 92) 16 Mar. 1957
M 478 HERSTAL (ex-MSI 90) 6 Aug. 1956	M 470 TEMSE 6 Aug. 1956
M 479 HUY (ex-MSI 91) 17 Nov. 1956	M 475 TONGEREN 16 Nov. 1957
M 472 KORTRIJK 16 Mar. 1957	M 481 TOURNAI (ex-MSI 93) 18 May 1957
M 473 LOKEREN 18 May 1957	M 474 TURNHOUT 7 Sep. 1957
M 476 MERKSEM 5 Apr. 1958	M 482 VISE (ex-MSI 94) 7 Sep. 1957

Displacement: 160 tons light (190 tons full load)
 Dimensions: 106 $\frac{1}{2}$ (pp.), 113 $\frac{1}{2}$ (o.a.) \times 22 $\frac{1}{2}$ \times 6 to 7 (max.) feet
 Guns: 2—20 mm. AA.
 Machinery: 2 diesels, 2 shafts. B.H.P.: 1,260=15 kts. (max.)
 Oil fuel: 18 tons
 Range: 2,300 miles at 10 kts.
 Complement: 17

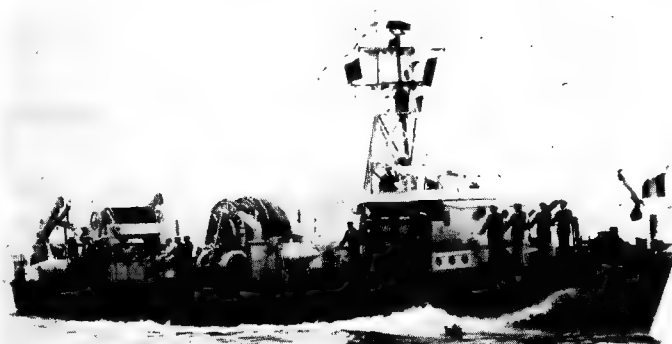
General

New MSI type. Modified AMI "100-foot" class. All built in Belgium. The first four MSI were launched in 1956. Herstal and Temse were both launched at the Mercantile Marine Yard, Kruibeche, on 6 Aug. 1956, followed by another pair in 1956, and four more pairs in 1957 (see launch dates above). Herstal was completed in June 1957. The first group of eight (M 478 to 485) was a United States "off shore order," the remaining eight (M 470 to 477) being financed under the Belgian Navy Estimates.

Photographs

A photograph of Kortrijk appears in the 1959-60 to 1964-65 editions.

Inshore Minesweepers—continued



TONGEREN

1964, Belgian Navy, Official



SERAING

1963, Belgian Navy, Official

RESEARCH SHIP (Bâtiment d' Études)

ZENOBE GRAMME

Displacement: 149 tons
 Dimensions: 92/76 \times 22 $\frac{1}{2}$ \times 7 feet
 Machinery: 1 MWM diesel. 1 shaft. B.H.P.: 200=10 kts.
 Complement: 14

General

Sailing ship, built in Belgium (Temse) in 1961. Designed for scientific research and port sailing. Pennant No. A 958.

RIVER PATROL BOATS (Vedettes Fluviales)



OURTHE 1962, Belgian Navy, Official

IJZER	LEIE LIBERATION	MEUSE	SAMBRE	SCHELDE SEMOIS
Displacement:	25 tons light (27.5 tons full load)			
Dimensions:	75 $\frac{1}{2}$ (pp.), 82 (o.a.) \times 12 $\frac{1}{2}$ \times 3 feet (Liberation 85 $\frac{1}{2}$ \times 13 $\frac{1}{2}$ \times 3 $\frac{1}{2}$ feet)			
Guns:	2 M.G.			
Machinery:	2 diesels. 2 shafts. B.H.P.: 440=19 kts.			
Complement:	7			

General

Built at the Theodor Shipyards of Regensburg, Germany, in 1953, except Liberation, in 1954.

Disposals

The river patrol boats Dender, Ourthe and Rupel were officially deleted from the list in 1965.

TUGS (Remorqueurs)

SUB-LIEUTENANT VALCKE

Displacement: 110 tons
 Dimensions: 78 $\frac{1}{2}$ (pp.), 95 (o.a.) \times 21 \times 5 $\frac{1}{2}$ feet
 Machinery: 1 diesel. 1 shaft. B.H.P.: 600=12 kts.
 Complement: 14

General

Built in Haarlem, Netherlands in 1951. Pennant No. A 950. Photo in 1957-58 edition.

Harbour Craft

There are also two port tugs (remorqueurs-portualires et bateau-pompe), namely Bij and Krekel, displacement 70 tons, length 57 $\frac{1}{2}$ feet. 2 Voigt-Schneider propellers, 500 H.P.; three harbour tugs (remorqueurs portualires), namely Hommel and Wesp, displacement 22 tons, length 43 feet, with 300 B.H.P. diesels and Voigt Schneider propellers, built in Germany in 1953, and Mier, displacement 17.5 tons, length 41 feet, with 80 B.H.P. diesels and Voigt Schneider propellers, built in Belgium in 1962; three barges, namely FN 4, FN 5, and FN 6, displacement 300 tons, length 105 feet, built in the Netherlands; the ammunition ship Ekster, displacement 140 tons, length 118 feet, built in Belgium in 1953; and two diving cutters, ZM 3 and ZM 4, displacement 50 tons, length 33 feet, built in Belgium in 1953.

BRAZIL

Administration

Minister of Marine:
Admiral (Retired) Paulo Bosisio.

Chief of Naval Staff:
Vice-Admiral Arnaldo Toscano.

Naval Attaché in London:
Captain Antonio Avila de Malafaia.

Naval Attaché in Washington:
Vice-Admiral Antonio Junqueira Giovannini.

Personnel

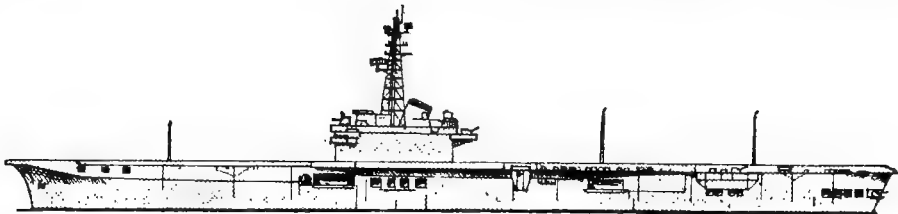
1965: 1,700 officers and 41,000 men.

Mercantile Marine

Lloyd's Register of Shipping:
421 vessels of 1,271,108 tons gross

Silhouettes

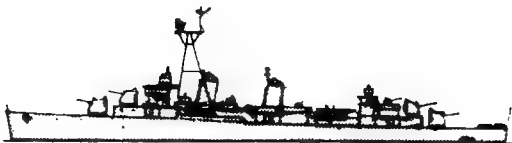
Scale: 150 feet=1 inch



MINAS GERAIS



TAMANDARÉ



PERNAMBUCO



BARROSO



PARA Class



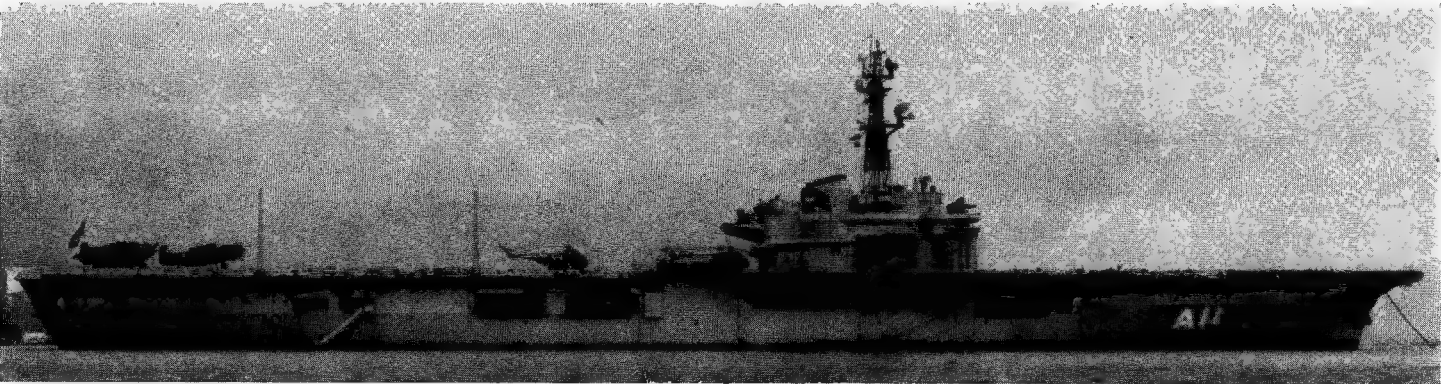
AMAZONAS Class



MARCILIO DIAS Class

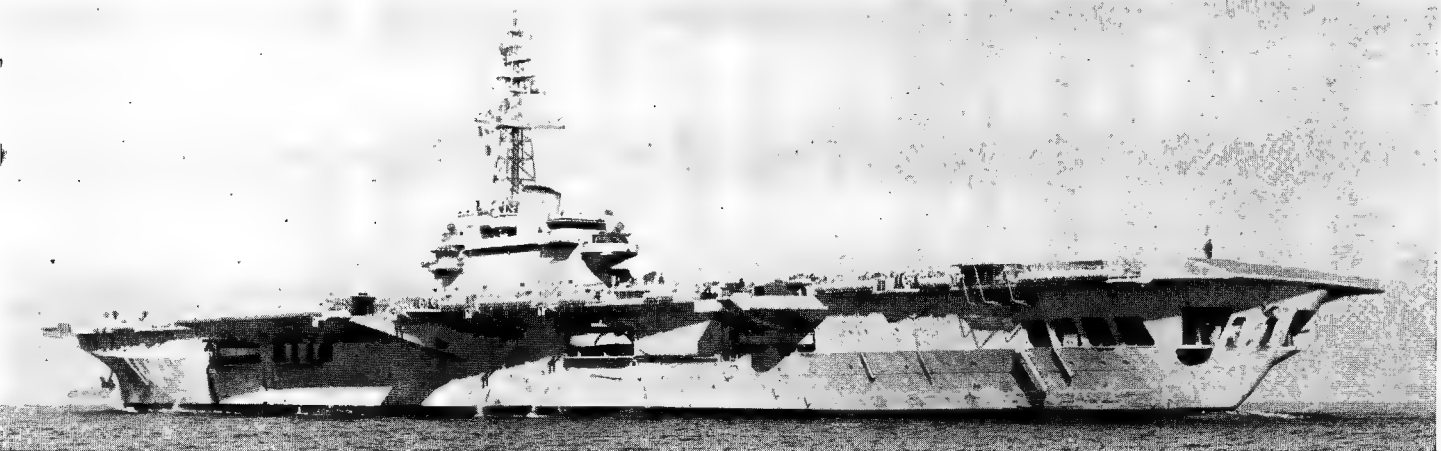


BAURU Class



MINAS GERAIS (starboard broadside view)

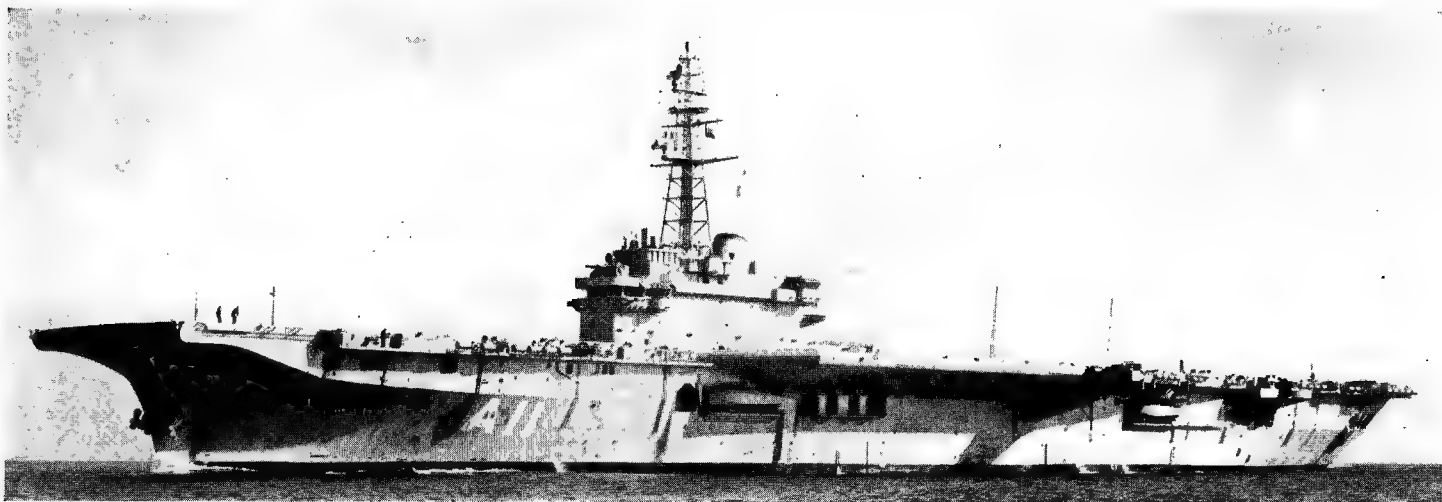
1962, Brazilian Navy, Official



MINAS GERAIS (port quarter view) see next page

1961, Wright & Logan

AIRCRAFT CARRIER (NAel)



MINAS GERAIS (after reconstruction). Port bow view

1961, Wright & Logan

I Ex-British Type ('Colossus' Class)

MINAS GERAIS (ex-H.M.S. Vengeance)

Pennant No.:	A 11
Builders:	Swan, Hunter & Wigham Richard-son, Ltd., Wallsend-on-Tyne
Laid down:	16 Nov. 1942
Launched:	23 Feb. 1944
Completed:	15 Jan. 1945
Reconstructed:	Verolme Dock, Rotterdam, 1957-60
Displacement:	15,890 tons standard, 17,500 tons normal (19,890 tons full load) (see Displacement note)
Dimensions:	Length: 630 (pp.), 695 (o.a.) feet. Beam: 80 feet. Width: 121 (o.a.) feet (as reconstructed). Draught: 21½ (mean) 23½ (max.) feet. Flight deck, 690 feet long, 80 feet wide, 39 feet above water line.
Guns:	10—40 mm. AA. (2 quadruple, 1 twin), 2—47 mm. (saluting)
Aircraft:	21. capacity
Catapult:	1 steam
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 40,000=25 kts. (24.25 kts. sea speed) 25.3 kts. on trials after reconstruction (see Engin-eering note)
Boilers:	4 Admiralty 3-drum type (400 lb. working pressure, 700 degrees maximum superheat)
Oil fuel:	3,200 tons
Radius:	12,000 miles at 14 kts.; 6,200 miles at 23 kts.
Complement:	1,000 (1,300 with air group on board)

General
Served in British Navy from 1945 onwards. Fitted out in late 1948-early 1949 for experimental cruise to Arctic. Lent to the Royal Australian Navy early in 1953, but was returned to the Royal Navy in August 1955. British Admiralty announced on 14 Dec. 1956 the purchase of *Vengeance* by the Brazilian Government. Reconstructed at Verolme Dock, Rotterdam (Verolme United Shipyards' Rosenberg yard) from summer 1957 to Dec. 1960. The conversion and overhaul included the installation of the angled deck, steam catapult, mirror sight deck landing system, and complete armament fire control and radar equipment. The ship was purchased for \$9,000,000 and the reconstruction cost \$27,000,000. Commissioned in Brazilian Navy at Rotterdam on 6 Dec. 1960. Left Rotterdam for Rio de Janeiro on her maiden voyage as *Minas Gerais* on 13 Jan. 1961. Used primarily for anti-submarine warfare aircraft and helicopters.



MINAS GERAIS (port oblique aerial view)

1962, Brazilian Navy, Official

Engineering
Engines and boilers are arranged *en echelon*, the two propelling machinery spaces having one set of turbines and two boilers installed side by side in each space, on the unit system, so that the starboard propeller shaft is longer than the port shaft. Maximum speed is 25 knots at 120 revolutions per minute. Boiler capacity was increased when boilers were retubed during reconstruction in 1957-60.

Electrical
During reconstruction a complete alternating current system was built into the ship, and a total of 2,500 kW supplied by four turbo-generators and one diesel generator.

Construction
Damage control: No great measure of vertical subdivision on the sandwich system as it was reckoned that it is better for ships to settle evenly in the event of damage and flooding than to foster capsizing.
Insulated for tropical service and partially air-conditioned.

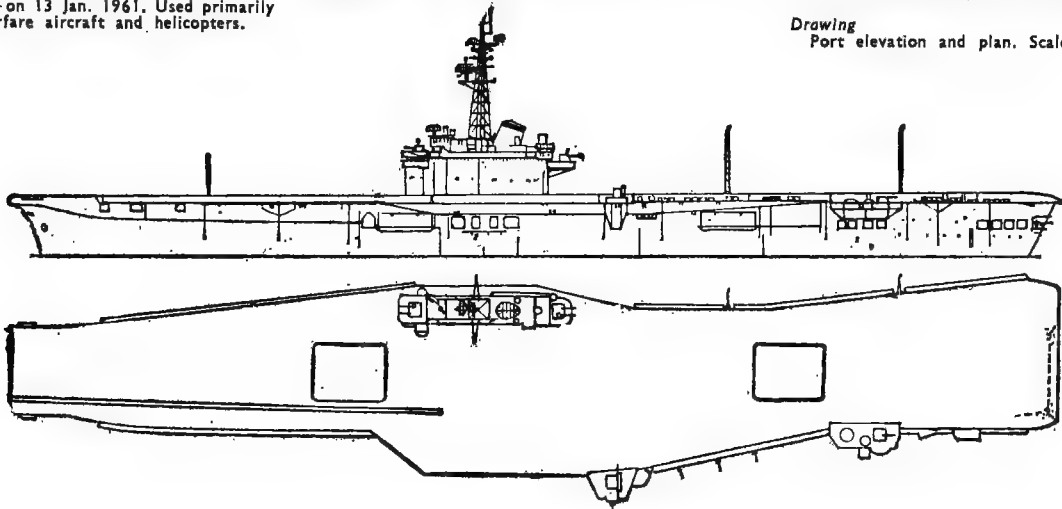
Operational
Arrester wires to take 20,000 lb. aircraft up to 60 knots. Single track catapult for launching 20,000 lb. aircraft at 60 knots. Catapult accelerator gear port side forward. Flight deck originally designed for 14,000 lb. aircraft reinforced to take 20,000 lb. machines.

Hangar
Dimensions of hangar are: Length, 445 feet; width, 52 feet; clear depth, 17½ feet. Dimensions of aircraft lifts were: 45 feet by 34 feet. During reconstruction in 1957-60 new aircraft lifts replaced the original units.

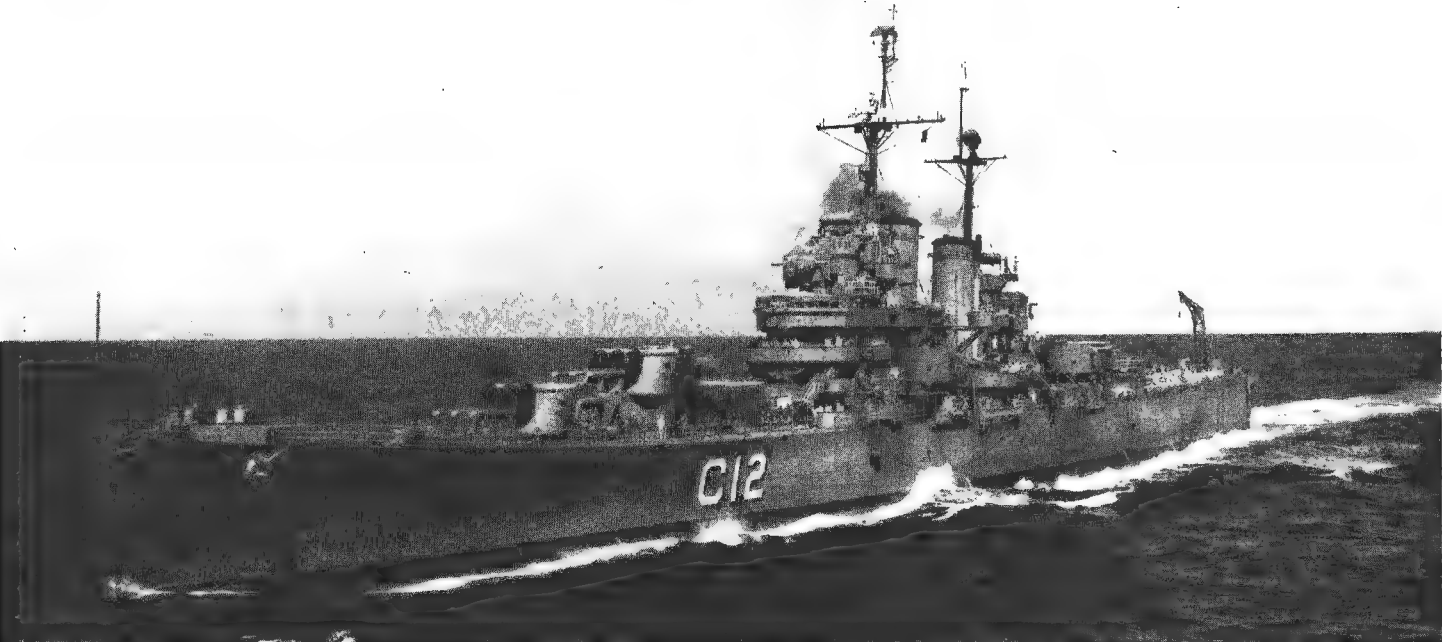
Photographs
Photographs of this ship before reconstruction appear in the 1957-58 edition (port bow aerial view and starboard bow aerial view) and in the 1958-59 to 1960-61 editions (starboard bow oblique aerial view and starboard broadside view).

Displacement
The displacement before reconstruction was 13,190 tons standard and 18,040 tons full load.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.



CRUISERS (CL)

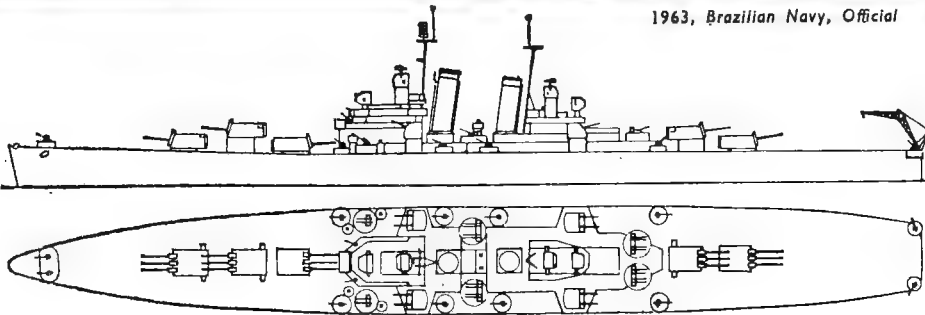


TAMANDARÉ

1963, Brazilian Navy, Official

TAMANDARÉ (ex-U.S.S. St. Louis, CL 49)

Pennant No.:	C 12
Builders:	Newport News S.B. & D.D. Co.
Laid down:	10 Dec. 1936
Launched:	15 Apr. 1938
Completed:	10 Dec. 1939
Displacement:	10,000 tons standard, 13,500 tons full load
Dimensions:	Length: 608½ feet (o.a.) Beam: 69 feet. Draught: 24 (max.) feet
Guns:	15—6 inch, 47 cal., 8—5 inch, 38 cal. (twin dual purpose), 28—40 mm. AA., 8—20 mm. AA.
Aircraft:	1 helicopter (see Hangar notes)
Armour:	5—1½" belt, 3" + 2" decks, 5"—3" turrets, 8" C.T.
Machinery:	Westinghouse geared turbines, 4 shafts. S.H.P.: 100,000=32.5 kts.
Boilers:	8 Babcock & Wilcox Express type (boiler pressure is higher than in Barroso)
Oil fuel:	2,100 tons
Radius:	14,500 miles at 15 kts.
Complement:	975



General
"St. Louis" class. Purchased from the United States, with the Barroso (transferred on 29 Jan. 1951) *Tamandaré* differs from Barroso in having her 5-inch guns mounted in pairs in roomy gunhouses on high bases, a different scheme of boat stowage, a small tripod mast immediately abaft second funnel, and after gunnery control arrangements redistributed.

Hangar
The hangar in the hull right aft could originally accommodate 6 aircraft if necessary together with engine

spares and duplicate parts, though 4 aircraft was the normal capacity. The incorporation of this hangar resulted in a very wide and nearly flat counter and high freeboard aft and also gave the after guns higher command. Above the hangar two catapults were mounted as far outboard as possible, and a revolving crane was placed at the stern extremity overhanging the aircraft hatch.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.

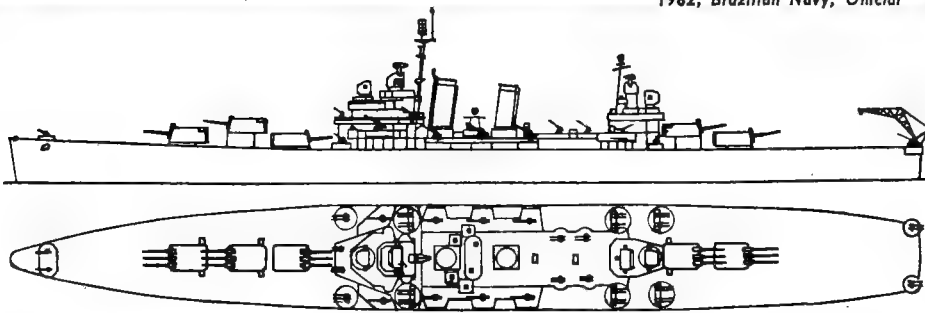


BARROSO

1962, Brazilian Navy, Official

BARROSO (ex-U.S.S. Philadelphia, CL 41)

Pennant No.:	C 11
Builders:	Philadelphia Navy Yard
Laid down:	28 May 1935
Launched:	17 Nov 1936
Completed:	28 July 1938
Displacement:	9,700 tons standard, 13,000 tons full load
Dimensions:	Length: 600 (w.l.), 608½ (o.a.) feet. Beam: 69 feet (with bulges). Draught: 19½ (mean), 24 (max.) feet
Guns:	15—6 inch; 47 cal.; 8—5 inch, 38 cal. (single mountings); 28—40 mm. AA.; 20—20 mm. AA.
Aircraft:	1 helicopter (see Hangar notes above)
Armour:	4" to 1½" belt, 3" and 2" decks, 5" to 3" turrets, 8" conning tower
Machinery:	Westinghouse geared turbines, 4 shafts. S.H.P.: 100,000=32.5 kts.
Boilers:	8 Babcock & Wilcox Express type
Oil fuel:	2,100 tons
Radius:	14,500 miles at 15 kts.
Complement:	888



General
"Brooklyn" class. Purchased from the United States in 1951. Originally two catapults were mounted on the quarter deck for launching the aircraft (see Hangar Notes under *Tamandaré*). After initial completion the superstructure was reduced, bulges were added and the beam increased. Commissioned in the Brazilian Navy on 21 Aug. 1951.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.

Class Sisters
Originally a sister ship of *General Belgrano* (ex-17 de Octubre, ex-U.S.S. *Phoenix*) and *Nuevo de Julio* (ex-U.S.S. *Boise*) in the Argentine Navy, and *O'Higgins* (ex-U.S.S. *Brooklyn*) and *Prat* (ex-U.S.S. *Nashville*) in the Chilean Navy.

DESTROYERS (Contratorpedeiros) (CT)

4 British Design. "Amazonas" Class

Name	Laid down	Launched	Completed
ACRE	28 Dec. 40	30 May 45	10 Dec. 51
AMAZONAS	20 July 40	29 Nov. 43	10 Nov. 49
ARAGUAIA	20 July 40	24 Nov. 43	3 Sep. 49
ARAGUARI	28 Dec. 40	14 July 46	23 June 51

Displacement:	1,450 tons standard (1,800 tons full load)
Dimensions:	323 (o.a.) x 35 x 8½ (mean) 9 (max.) feet
Guns:	3—5 inch, 36 cal., 4—40 mm. AA. (two twin), 2—20 mm. AA., 4 D.C.T.
Tubes:	6—21 inch (two triple)
Machinery:	Parsons geared turbines. S.H.P.: 34,000—34 kts.
Boilers:	3, of 3-drum type
Oil fuel:	150 tons
Complement:	200

General
All built by Ilha das Cobras, Rio de Janeiro, to a British design. All named after rivers. Designated CT. Refitted with tripod mast. Pennant Nos. changed from A4, A1, AS, and A2, respectively, to D 10, D 12, D 14 and D 15.

Photographs
A photograph of *Ajuricaba* appears in the 1962-63 edition.

Disposals
Of this class, *Ajuricaba*, D 11, and *Apa*, D 13, were officially removed from the list in 1964.



AMAZONAS

1963, Brazilian Navy. Official

Ex-U.S. "Fletcher" Type. "Para" Class

Displacement:	2,100 tons standard (3,050 tons full load)
Dimensions:	376½ (o.a.) x 39½ x 12½ (mean), 18 (max.) feet
Guns:	<i>Pará</i> 5—5 inch, 38 cal. d.p., 6 40 mm. Bofors (3 twin); <i>Paraíba</i> , <i>Parana</i> : 5—5 inch, 38 cal. d.p., 10—40 mm. Bofors AA. (2 quadruple, 1 twin); <i>Pernambuco</i> : 4—5 inch, 38 cal. d.p., 6—3 inch, 50 cal. AA. (3 twin)
Tubes:	5—21 inch (quintupled)
A/S weapons:	2 Hedgehogs, 1 D.C. rack, 2 side-launching torpedo racks, 2 fixed hedgehogs
Machinery:	2 sets General Electric geared turbines, 2 shafts. S.H.P.: 60,000 = 35 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	650 tons
Radius:	6,000 miles at 15 kts.
Complement:	262 (15 officers, 247 men)

General
Former United States destroyers. *Cushing* is of the later "Fletcher" class and the other three are of the "Fletcher" class (see particulars in the U.S.A. section). Acquired from the United States on loan for five years, under the Military Aid Programme in 1959. *Guest* was transferred to the Government of Brazil on 5 June 1959 and renamed *Para*. *Bennett* was transferred to Brazil on 15 Dec. 1959 at Bremerton, Washington, and re-named *Paraíba*; *Cushing* and *Hailey* were transferred to



PERNAMBUCO (four 5-inch guns)

1962, Brazilian Navy. Official

Brazil on 20 July 1961, at Norfolk Naval Shipyard, Portsmouth, Virginia, and re-named *Parana* and *Pernambuco*, respectively. A photograph of *Pará* (five 5-inch guns) appears in the 1960-61 and 1962-63 editions.

Name	No.	Builders	Laid down	Launched	Completed
PARA (ex-U.S.S. <i>Guest</i> , DD 472)	D 27	Boston Navy Yard	27 Sep. 1941	20 Feb. 1942	15 Dec. 1942
PARAIBA (ex-U.S.S. <i>Bennett</i> , DD 473)	D 28	Boston Navy Yard	10 Dec. 1941	16 Apr. 1942	9 Feb. 1943
PARANA (ex-U.S.S. <i>Cushing</i> , DD 797)	D 29	Bethlehem Steel Co. (Staten Island)		30 Sep. 1943	17 Jan. 1944
PERNAMBUCO (ex-U.S.S. <i>Hailey</i> , DD 556)	D 30	Seattle-Tacoma S.B. (Corpn., Seattle)	11 Apr. 1942	9 Mar. 1943	30 Sep. 1943

3 U.S.A Design. "Greenhalgh" Class

Name	No.	Launched	Completed
GREENHALGH	D 24	8 July 41	1944
MARCILIO DIAS	D 25	20 July 40	1943
MARIZ E BARROS	D 26	28 Dec. 40	1944

Displacement:	1,500 tons standard (2,200 tons full load)
Dimensions:	341 (pp.), 360 (o.a.) x 35 x 10 (mean) 12 (max.) feet
Guns:	4—5 inch, 38 cal. (d.p.), 2—40 mm. AA., 6—20 mm. AA. (see Gunnery notes)
Tubes:	4—21 inch (quadrupled)
Machinery:	Geared turbines by General Electric Co. S.H.P.: 42,800=36.5 kts.
Boilers:	4 high-pressure watertube of Express type by Babcock & Wilcox
Oil fuel:	550 tons
Radius:	6,000 miles
Complement:	210

General
All of U.S.A. design and built at Ilha das Cobras, Rio de Janeiro, with material from U.S.A. These ships are generally similar to destroyers of the U.S. Navy, and



MARCILIO DIAS

1960, Brazilian Navy. Official

are armed with guns of U.S. manufacture. All three were laid down in 1937 and commissioned on 29 Nov., 1943. Designated CT. Pennant Nos. changed from M 3, M 1, and M 2, respectively. In *Greenhalgh* two 5-inch guns were replaced by four 40 mm. AA. guns (two twin mountings) it was officially stated in 1965.

FRIGATES (Destroyer Escorts) (Officially rated as *Avisos Oceanicos*)**6 Ex-U.S. DE Type. "Baependi" Class**

Displacement: 1,240 tons standard (1,900 tons full load)
 Dimensions: 306 (o.a.)×37×12 feet
 Guns: 3—3 inch (dual purpose), 2—40 mm., 4—20 mm.
 Tubes: 3—21 inch
 Machinery: Diesel-electric drive, 4 G.E. diesels and 2 electric motors, 2 shafts, S.H.P.: 6,000=19 kts.
 Oil fuel: 300 tons
 Radius: 11,500 miles at 11 kts.
 Complement: 200

General

Former United States destroyer escorts of the "Bostwick" class. Built by Dravo, Wilmington, Del. (Baependi) and Federal, Port Newark (other five). Transferred from the U.S. Navy in 1944: Pennant Nos. changed from BE 5, 4, 2, 6, 8, 3, respectively, to D17, D18, D19, D20, D22 and D23. Formerly designated CTE (Destroyer Escorts) but reclassified as Avisos Oceanicos in 1965.

Photographs

A photograph of *Babitonga*, D 16, appears in the 1960-61 and 1961-62 editions, and a photograph of *Bocaina*, D 22, in the 1962-63 edition.

Disposals

Of this class, *Babitonga*, D 16, and *Bertloga*, D 21, were officially removed from the list in 1964.



BERTIOGA

1963, Brazilian Navy, Official

Name	Pennant No.	Laid down	Launched	Completed
BAEPENDI (ex-U.S.S. Cannon, DE 99)	D 17	14 Nov. 1942	25 May 1943	26 Sep. 1943
BAURU (ex-U.S.S. Reybold, DE 177)	D 18	17 May 1943	22 Aug. 1943	11 Oct. 1943
BEBERIBE (ex-U.S.S. Herzog, DE 178)	D 19	17 May 1943	5 Sep. 1943	6 Oct. 1943
BENEVENTE (ex-U.S.S. Christopher, DE 100)	D 20	7 Dec. 1942	June 1943	23 Oct. 1943
BOCAINA (ex-U.S.S. Marts, DE 174)	D 22	26 Apr. 1943	8 Aug. 1943	3 Sep. 1943
BRACUI (ex-U.S.S. McAnn, DE 179)	D 23	3 May 1943	5 Sep. 1943	24 Sep. 1943

SUBMARINES (Submarinos) (SE)**2 Ex-U.S. "Balao" Class**

BAHIA (ex-U.S.S. Plance, SS 390)
RIO GRANDE DO SUL (ex-U.S.S. Sand Lance, SS 381 ex-Orca, ex-Orjanco)

Name: Bahia Rio Grande do Sul
 Pennant Nos.: S 12 S 11
 Builders: Portsmouth Portsmouth
 Naval Shipyard Naval Shipyard
 Launched: 15 Nov. 1943 25 June 1943
 Completed: 12 Feb. 1944 9 Oct. 1943
 Displacement: 1,526 tons standard, 1,816 tons surface (2,400 tons submerged)
 Dimensions: 311½×27×17 feet
 Tubes: 10—21 inch (6 bow, 4 stern), 24 torpedoes
 Machinery: Fairbanks-Morse 2-stroke diesels B.H.P.: 6,500=20 kts. (surface) S.H.P.: 5,500=10 kts. (submerged)
 Oil fuel: 300 tons
 Radius: 12,000 miles at 10 kts.

General

Former United States submarines of the "Balao" class loaned to Brazil for five years under the Military Assistance Program after completion of overhaul at the Pearl Harbour Naval Shipyard in Sep. 1963.

2 Ex-U.S. "Gato" Class

HUMAITA (ex-U.S.S. Muskallunge SS 262)
RIACHUELO (ex-U.S.S. Paddle SS 263)

Name: Humaita Riachuelo
 Pennant Nos.: S 14 S 15
 Builders: Electric Boat Co. Electric Boat Co.
 Laid down: 7 Apr. 1942 1 May 1942
 Launched: 13 Dec. 1942 30 Dec. 1942
 Completed: 15 Mar. 1943 29 Mar. 1943
 Displacement: 1,525 tons standard, 1,816 tons surface (2,425 tons submerged)
 Dimensions: 311½×27×17 feet
 Tubes: 10—21 inch (6 bow, 4 stern)
 Machinery: General Motors 2-stroke diesels B.H.P.: 6,500=21 kts. (surface); Allis Chalmers electric motors: H.P.: 2,750=10 kts. (submerged)
 Complement: 85



HUMAITA

Brazilian Navy, Official



RIACHUELO

1962, Brazilian Navy, Official

General

Former United States submarines of the "Gato" Class loaned to Brazil for five years under the Mutual Defense

Assistance Program, after completion of overhaul at the Philadelphia Naval Shipyard in Jan. 1957. Have two engine rooms to reduce size of compartments.

COASTAL MINESWEEPERS (NV)**4 Ex-U.S. MScO Type. "River" Class**

JAVARI (ex-U.S.S. Cardinal, MScO 4) **JURUA** (ex-U.S.S. Jackdaw, MScO 21)
JURUENA (ex-U.S.S. Grackle, MScO 13) **JUTAI** (ex-U.S.S. Egret, MScO 46)

Displacement: 270 tons standard (350 tons full load)
 Dimensions: 136×24½×8 (max.) feet
 Guns: 4—20 mm. in two twin mountings
 A/S weapons: 2 D.C.T.
 Machinery: 2 G.M. diesels, 2 shafts, B.H.P.: 1,000=15 kts.
 Oil fuel: 16 tons
 Radius: 2,300 miles at economical speed
 Complement: 50

General

Coastal motor minesweepers of wooden construction. All launched in 1942-43. Formerly known as Auxiliary Motor Minesweepers (AMS). Reclassified as Minesweepers, Coastal (old), MSC (o), in Feb. 1955. *Cardinal* and *Egret* were transferred to the Brazilian Navy by the United States Navy at Charleston Naval Shipyard on 15 Aug. 1960 under the Mutual Defense Assistance Program as the nucleus of a Brazilian mine force, and renamed after Brazilian rivers. Pennant Nos. M 11 and M 12, respectively. Used for patrol and escort duties.

Jackdaw was transferred to Brazil in Jan. 1963, and *Grackle* in Apr. 1963. *Bunting*, MHC 45 is also reported to be on the transfer list.



JAVARI

1962, Brazilian Navy, Official

SURVEYING VESSELS (Navios Hidrograficos) (NH)



CANOPUS 1958, Ishikawajima Heavy Industries Co. Ltd.
2 Frigate Type

Name	Pennant No.	Laid down	Launched	Completed
CANOPUS	H 22	13 Dec. 1956	20 Nov. 1957	15 Mar. 1958
SIRIUS	H 21	13 Dec. 1956	30 July 1957	27 Dec. 1957

Displacement: 1,463 tons standard
Measurement: 1,600 tons gross
Dimensions: 236½ (pp.), 246 (w.l.), 255½ (o.a.) × 39½ × 12½ feet
Guns: 1—3 inch AA., 4—20 mm. M.G.
Machinery: Diesel, 2 shafts. B.H.P.: 2,700=15 kts.
Complement: 102

General Built by Ishikawajima Heavy Industries Co. Ltd., Tokio, Japan. Fitted with a helicopter platform aft. Special surveying apparatus, echo sounders. Raydist equipment, sounding machines are installed and a helicopter, landing craft (LCVP), jeep, and surveying launches are carried. The propellers are of the controllable pitch type. All living and working spaces are air-conditioned.



ORION 1961, Brazilian Navy, Official
3 Coastal Type

Name	Pennant No.	Laid down	Launched	Completed
ARGUS	H 31	12 Dec. 1955	6 Dec. 1957	29 Jan. 1959
ORION	H 32	12 Dec. 1955	5 Feb. 1958	11 June 1959
TAURUS	H 33	12 Dec. 1955	7 Jan. 1958	23 Apr. 1959

Displacement: 250 tons standard (300 tons full load)
Dimensions: 138 (pp.), 147½ (o.a.) × 20 feet
Machinery: 2 diesels coupled to two shafts. B.H.P.: 1,200=15 kts.
Oil fuel: 35 tons

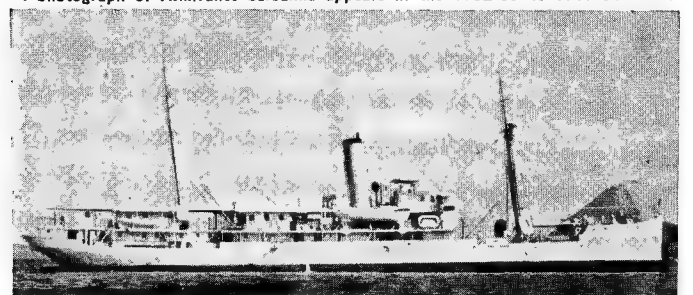
General All built by Arsenal da Marinha in Rio de Janeiro and incorporated into the Navy on the effective list on the dates shown as completed in the table above.

ALMIRANTE SALDANHA
Displacement: 3,325 tons standard (3,825 tons full load)
Dimensions: 262 (pp.), 307½ (o.a.) × 52 × 18½ feet (mean draught)
Guns: 4—4 inch, 1—3 inch AA., 4—3 pdr.
Total sail area: 25,990 sq. ft.
Machinery: Auxiliary diesel engine. B.H.P.: 1,400=11 kts.
Radius of action: 12,000 miles
Complement: 356+100 midshipmen and cadets

General Former training ship. Built by Vickers Armstrongs, Ltd., Barrow. Launched on 19 Dec. 1933. Cost £314,500. Instructional minelaying gear was included in equipment. The single 21-inch torpedo tube was suppressed. Pennant No. U 10 (ex-NE 1).

Reclassification It is officially stated that *Almirante Saldanha* has been classified as an Oceanographic Ship (NOc) since Aug. 1959, and completely remodelled by 1964.

Photograph A photograph of *Almirante Saldanha* appears in the 1952-53 to 1959-60 editions.



JOSE BONIFACIO 1957, Brazilian Navy, Official
JOSE BONIFACIO (ex-Itapema)

Displacement:	1,300 tons
Dimensions:	270 × 42 × 14 feet
Guns:	Removed. (See General note)
Machinery:	Triple expansion. I.H.P.: 540=9 kts.
Complement:	152

General Built by Ailsa S.B. Co., Troon. Launched in 1909. Transport employed as survey ship. Formerly armed with two 4-inch guns and two 6-pounders. Pennant No. H 12.

CORVETTES (Corvetas) (CV) Fleet Tug Type



IPIRANGA Added 1958, Official
10 "Imperial Marinheiro" Class

ANGOSTURA BAHIANA CABOCLLO	FORTE DE COIMBRA IGUATEMI IMPERIAL MARINHEIRO	IPIRANGA SOLIMOEES MEARIM PURUS
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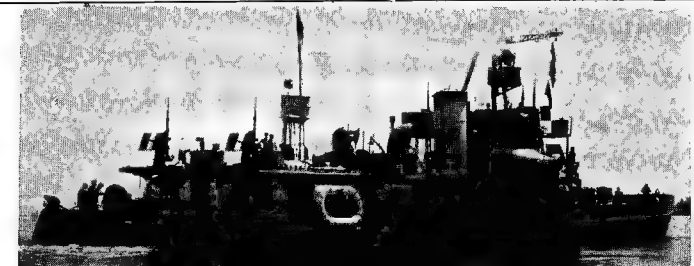
Displacement: 911 tons standard
Dimensions: 184 × 30½ × 11½ feet
Guns: 1—3 inch, 50 cal.; 4—20 mm. AA.
Machinery: 2 Sulzer diesel engines. B.H.P.: 2,160=16 kts.
Oil fuel: 135 tons
Complement: 60

General All built in the Netherlands, launched in 1954-55, and incorporated into the Brazilian Navy in 1955. Actually fleet tugs. Pennant Nos. V 20, V 21, V 19, V 18, V 16, V 15, V 17, V 22, V 23 and V 24, respectively.

Photograph A photograph of *Imperial Marinheiro* appears in the 1956-57 and 1957-58 editions.

Disposals The three ex-British trawlers rated as *corvetas* and *navios-faroleiros* of the "Felipe Camarao" class, *Felipe Camarao*, *Henrique Dias* and *Vidal Negreiros*; the five mine-layers rated as *corvetas* and *Minerios* of the "Carioca" class, *Cabedelo*, *Camacim*, *Caravelas* and *Carioca*; and the four ex-American patrol vessels rated as *caco-sub-marinos*, *Graju*, *Grauna*, *Guajara* and *Gurupi*, were all removed from the list in 1960.

RIVER MONITORS (Monitores) (M)



PARNAIBA Added 1950

PARNAIBA
Displacement: 620 tons standard
Dimensions: 180½ (o.a.), 178½ (pp.) × 33½ × 5 feet (max. draught)
Guns: 1—3 inch, 50 cal.; 2—47 mm.; 2—40 mm. AA. (single), 6—20 mm. AA.
Armour: 3" side and partial deck protection
Machinery: 2 sets vertical triple expansion by John I. Thornycroft & Co. Ltd., Southampton. 2 shafts. I.H.P.: 1,300=12 kts.
Boilers: 2, of 3-drum type, working pressure 250 lb.
Oil fuel: 70 tons
Complement: 90

General Built at Rio de Janeiro. Laid down on 11 June 1936. Launched in Sep. 1937, and completed in Nov. 1937. In Matto Grosso Flotilla. Pennant No. U 17 (ex-P 2). Re-armed in 1960 (see guns above). For former armament see 1959-60 edition.

PARAGUAÇU (ex-Victoria, ex-Espírito Santo)
Displacement: 430 tons standard
Dimensions: 146½ × 34½ × 5 feet
Guns: 1—3 inch, 50 cal.; 2—47 mm.; 2—40 mm. AA. (single), 6—20 mm. AA.
Machinery: 2 sets triple expansion, by J. S. White & Co. Ltd., Cowes. I.H.P.: 1,100=13 kts.
Boilers: 2, of 3-drum type
Oil fuel: 40 tons
Complement: 71

General Built at Rio de Janeiro. Launched on 22 Dec. 1938. In Matto Grosso Flotilla. Pennant Nos. U 16 (ex-P 3). Re-armed in 1960 (see guns above). For former armament see 1959-60 edition. A photograph of *Paraguacu* appears in the 1940 to 1960-61 editions.

SEAWARD DEFENCE BOATS (NPa)

3 "P" Class

PIRAJU (P 1)	PIRANHA (P 3)	PIRAQUE (P 4)
Displacement:	130 tons standard	
Dimensions:	128 × 19½ × 6 feet	
Guns:	1—3 inch, 23 cal.; 3—20 mm. AA.	
A/S weapons:	30 D.C.	
Machinery:	Diesels. 3 shafts. B.H.P.: 1,890=20 kts.	
Complement:	30	

General Motor launches. All launched in 1947-48. Built at Rio de Janeiro. The hulls are of wooden construction. Pennant Nos. J 28, J 30, and J 32, respectively. A photograph of *Piranha* appears in the 1950-51 to 1960-61 editions.

Disposals Of this class *Pirambu* P 2, and *Pirapla*, P 5, were officially removed from the list in 1964, and *Piraua*, P 6, in 1960.

RIVER GUNBOATS (Avisos) (AV)



RIO DOCE

Added 1958, Official

6 "Rio" Class

RIO DAS CONTAS RIO FORMOSO RIO TURVO
RIO DOCE RIO FORMO RIO VERDE

Displacement: 150 tons standard
Dimensions: 121½ × 21½ × 9½ feet
Machinery: Diesel. B.H.P.: 450=15 kts.

General Built in the Netherlands in 1955-56. Officially classified as avisos. Pennant Nos. U 21, U 20, U 22, U 23, U 24 and U 25, respectively.

Disposal The old river gunboat *Otaoquo* (ex-*Amapa*, ex-*Cidade de Belem*) was officially removed from the list in 1964.

REPAIR SHIPS

BELMONTE (ex-U.S.S. *Helios*, ARB 12, ex-LST 1127)
Displacement: 1,625 tons light (4,100 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.) × 50 × 11 feet
Guns: 8—40 mm. AA.
Machinery: General Motors diesels. 2 shafts. B.H.P.: 1,800=11.6

General Former United States battle damage repair ship. Built by Maryland D.D. Co., Baltimore, Md. Laid down on 23 Nov. 1944. Launched on 14 Feb. 1945. Completed on 26 Feb. 1945. loaned to Brazil by U.S.A. in Jan. 1962 under MAP.

CEARA (ex-U.S.S. ARD 14)

Displacement: 5,200 tons
Dimensions: 402×81 feet

General Former United States auxiliary repair dry dock transferred to the Brazilian Navy and renamed.

Disposal The old destroyer depot and repair ship *Belmonte*, rated as *torpedeiros depot* and *navio tender*, was officially removed from the list in 1960.

OILERS (Navios-Tanques) (NT)

ANITA GARIBALDI **GASTÃO MOUTINHO**
Displacement: 794 tons full load
Dimensions: 150½ (pp.), 162 (o.a.) × 23 × 8 feet
Machinery: Diesel. 1 shaft
Capacity: 505 tons

General Constructed at the Naval Dockyards in Rio de Janeiro. Commissioned in 1956.

MATARIFE (BO) **TAUBATÉ (BO)**
Displacement: 743 tons
Dimensions: 164½ × 23½ × 9½ feet
Machinery: Diesel. 1 shaft
Capacity: 488 tons

ITAPURA (BA) **PAULO AFONSO (BA)**
Displacement: 485.3 tons
Dimensions: 140½ × 23 × 8 feet
Machinery: Diesel. 1 shaft
Capacity: 389 tons

General *Matarife* and *Taubaté* are oilers, and *Itapura* and *Paulo Afonso*, Pennant No: R 43, are water tankers. Near sisters. Launched in 1957.

Name	Pennant No.	Laid down	Launched	Completed
RAZA (ex- <i>Glaskanine</i> , AOG 63)	G 19 (ex-R 2)	21 Dec. 44	43 Feb. 45	26 Feb. 45
RIJO (ex- <i>Gualula</i> , AOG 28)	G 20 (ex-R 1)	24 Apr. 44	43 June 44	19 Aug. 44

Displacement: 2,228 tons full load
Dimensions: 217½ × 37 × 7 feet
Machinery: Diesel engines. B.H.P.: 850=9 kts.
Capacity: 1,500 tons
Complement: 41

General Former American petrol carriers (gasoline tankers). Both built at East Coast Shipyards, Bayonne, N.J., U.S.A. U.S.M.C. type TI-M-A2.
A photograph of *Rijo* appears in the 1950-51 to 1959-60 editions.

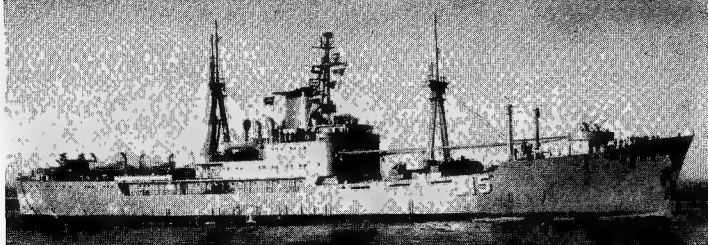
GARCIA D'AVILA (ex-YO 71)
Displacement: 1,400 tons
Dimensions: 176½ × 32 × 15 feet
Machinery: One Fairbanks Morse diesel engine. 5 cylinders, 2 cycle. B.H.P.: 500=10 kts.

General Former American yard oiler. Built in 1943. Purchased from the U.S. Navy in 1947. Pennant No. G 12.

POTENGI
Displacement: 600 tons
Dimensions: 175½ (pp.), 178½ (o.a.) × 24½ × 6 feet
Machinery: Diesel engines. 2 shafts. B.H.P.: 550=10 kts.
Oil: 450 tons
Complement: 19

General Built at the Papendrecht yard in the Netherlands. Launched on 16 Mar. 1938. Employed in the Matto Grosso Flotilla on river service. Pennant No. G 17.

TRANSPORTS (Navios-Auxiliares) (TrT)



CUSTODIO DE MELLO

1964, Wright & Logan

4 "Pereira" Class

Name	Pennant No.	Laid down	Launched	Completed
ARY PARREIRAS	G 21	13 Dec. 1955	24 Aug. 1956	29 Dec. 1956
BARROSO PEREIRA	G 16	13 Dec. 1953	10 Aug. 1954	1 Dec. 1954
CUSTODIO DE MELLO	G 15	13 Dec. 1953	10 June 1954	30 Dec. 1954
SOARES DUTRA	G 22	13 Dec. 1955	13 Dec. 1956	23 Mar. 1957

Displacement: 4,800 tons standard (7,300 tons full load)
Measurement: 4,200 tons deadweight, 4,879 tons gross (Panama)
Dimensions: 362 (pp.), 391½ (o.a.) × 52½ × 20½ feet (max.)
Guns: 2—20 mm. AA.
Machinery: 2 sets Ishikawajima all impulse 2 cylinder cross compound double reduction geared turbines. 2 shafts. S.H.P.: 4,800=17.67 kts. (sea speed 15 kts.)
Boilers: 2 Ishikawajima two drum water tube type, oil fuel
Complement: 127 (Troop capacity 1,972)

General All built in Japan by Ishikawajima Heavy Industries Co., Ltd., Tokio. Transports and cargo vessels. Flush deckers with forecastle and long poop. Elevator type helicopter landing platform laid on aft. Normal troop carrying capacity for 497 personnel, with commensurate medical, hospital and dental facilities. All working and living quarters are mechanically ventilated with partial air conditioning. Refrigerated cargo space of 15,500 cubic feet. Can carry 4,000 tons of cargo. *Barroso Pereira* and *Custodio de Mello* were incorporated into the Brazilian Navy on 22 Mar. 1955 and 8 Feb. 1955, respectively. Formerly armed with eight 40 mm. AA. guns.

Reclassification It was officially stated in Jan. 1962 that *Custodio de Mello* has been classified as a Training ship since July 1961.

Photograph A photograph of *Soares Dutra* appears in the 1958-59 to 1963-64 editions.
Recent Disposals The old transport *Almirante Frantin* (ex-*Itassuce*) was officially removed from the list in 1958. The ex-American dual purpose transport and training ship *Duque de Caxias*, U 11 (ex-*Orizaba*, AP 24) was officially removed from the list in 1960.

TRAINING SHIPS (Navios-Escolas)

The transport *Custodio de Mello* of the "Barroso Pereira" class (see above) has been classified as a training ship since July 1961.

ALBATROS (ex-*Wishbone*)
Displacement: 100 tons
Dimensions: 82½ × 17½ × — feet
Machinery: Diesel for auxiliary propulsion. B.H.P.: 85=5 kts.
Sail area: 3,000 square feet

General British auxiliary two-masted schooner yacht sold to the Brazilian Navy as a training ship. Employed as Naval College Training Yacht. Ballast (lead keel): 28 tons. The ex-German sail training ship (navios-escolas) *Guarabara* (ex-*Alibert Leo Schlageter*) was officially removed from the list in 1960, and sold to Portugal

TUGS (Rebocadores) (R)

TRIDENTE (ex-ATA 235)	TRITÃO (ex-ATA 234)	TRIUNFO (ex-ATA 236)
Displacement: 534 tons standard (835 tons full load)	Displacement: 133½ (w.l.), 143 (o.a.) × 33 × 13½ feet	
Guns: 2—20 mm. AA.	Guns: 2—20 mm. AA.	
Machinery: G.M. diesel-electric H.P.: 1,500=13 kts.		

General All built by Gulfport Boiler & Welding Works, Inc., Port Arthur, Texas, and launched in 1954. Ex-U.S. ATRs. Pennant Nos. *Tridente*, R 22, *Tritão*, R 21, *Triunfo*, R 23 (ex-R 2, R 1, R 3).

A photograph of *Tridente* appears in the 1950-51 to 1957-58 editions.

AUDAZ CENTAURO	GUARANI LAMEGO	PASSO DA PATRIA VOLUNTARIO
Measurement: 130 tons gross	Measurement: 130 tons gross	
Dimensions: 82 (pp.), 90½ (o.a.) × 23½ × 7½ (fore), 1½ (aft) feet	Dimensions: 82 (pp.), 90½ (o.a.) × 23½ × 7½ (fore), 1½ (aft) feet	
Machinery: Wumang-diesel motor. B.H.P.: 750=11 kts.	Machinery: Wumang-diesel motor. B.H.P.: 750=11 kts.	

General All built at Holland-Nautic Yard, Haarlem, Netherlands, in 1953. Small but powerful tugs of a new type for the Brazilian Navy. Pennant Nos. R 31, R 33, R 34, R 35 and R 36, respectively.

LAURINDO PITTA
Displacement: 514 tons
Dimensions: 130 × 26 × 15 feet
Machinery: Triple expansion. 2 shafts. I.H.P.: 850=11 kts.

General *Laurindo Pitta*, Pennant No. R 14, was built in Great Britain by Vickers. Launched in 1910. *Lomba* was officially deleted from the list in 1965.

ANTONIO JOAO
Displacement: 80 tons
Dimensions: 75½ × 17½ × 6½ feet
Machinery: Fairbanks Morse diesel engine. 6 cylinder, 2 cycle B.H.P.: 180

General Formerly classed as *aviso*. General utility craft for river service. Pennant No. R 26.

WANDENKOLK
Displacement: 350 tons
Machinery: S.H.P.: 600

General Formerly known as *Almirante Wandenkolk*, Pennant No. R 20. *Mario Alves* was officially removed from the list in 1960, and *Almirante Julio Noronha* and *Anibal de Mendonça* (ex-*Times*, ex-*St. Keyne*) in 1962.

BULGARIA

Naval Attaché In London:
Colonel Boris I. Toshev.

Naval Attaché in Washington:
Colonel Tzvetko Tomov.

Personnel
1965: 4,500 officers and ratings.

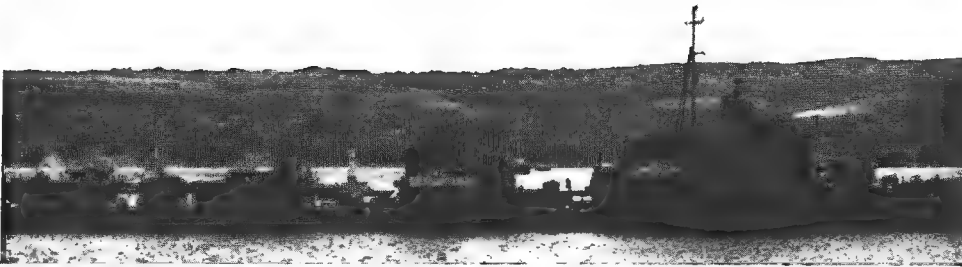
Mercantile Marine
Lloyd's Register of Shipping:
50 vessels of 177,094 tons gross

DESTROYERS

I Ex-U.S.S.R. "Otlichnyi" Type

GEORGI DIMITROV (ex-Ognevoyl)

Displacement: 1,800 tons standard (2,650 tons full load)
Dimensions: 387½ (o.a.) × 36½ × 12½ feet
Guns: 4—5.1 inch, 55 cal. (twin mounts), 2—3 inch AA., 6—37 mm. AA.
Tubes: 8—21 inch
A/S weapons: 4 D.C.T.
Mines: 68 to 80
Machinery: Geared turbines, 2 shafts
S.H.P.: 60,000=38 kts.
Boilers: 3
Oil fuel: 500 tons
Complement: 250



GEORGI DIMITROV

1960, Mr. P. H. Silverstone

General
Former Soviet destroyer of the "Otlichnyi" class. Built by Marti Nikolaiev. Launched in 1943. Transferred from the U.S.S.R. in 1957. In 1961 it was reported that she may have been scrapped; but in 1962 it was reported that she was undergoing overhaul. Bulgaria is

reported to have received at least one other destroyer from the U.S.S.R.; but the two Soviet destroyers of the "Skoryi" class formerly reported to be in Bulgarian waters on loan or base facility terms are now reported to be no longer on the list.

Recent Disposal
The former Soviet destroyer of the very old "Novik" type, ex- Zhelyeznyakov (ex-Petrovski, ex-Korfu), transferred to Bulgaria in 1950 is believed to have been stricken.

FRIGATES

2 "Riga" Type

DRUZI

SMELI

Displacement: 950 tons standard (1,200 tons full load)
Dimensions: 278½ × 29½ × 10 feet
Guns: 3—3.9 inch AA., 4—37 mm. AA.
Tubes: 3—21 inch
A/S weapons: 4 D.C.T.
Mines: 50
Machinery: Geared turbines, 2 shafts. S.H.P.: 24,000=27 kts.

General
Only the above two units of the "Riga" class are reported to exist. Transferred from the Soviet Navy in 1957 and 1958, one each year.

SUBMARINES

2 "W" Type

Displacement: 1,030 tons surface, 1,180 tons submerged
Dimensions: 240 (o.a.) × 22 × 15 (max.) feet
Guns: 4—25 mm. AA.
Tubes: 6—21 inch (4 forward, 2 aft)
Machinery: Diesels. B.H.P.: 4,000=17 kts. surface
Electric motors. H.P.: 2,500=15 kts. submerged
Radius: 13,000 miles
Complement: 60

General
Reported to have been transferred from the Soviet Navy in 1958. Total submarine strength reported to be three units (see below)

I "MV" Type

Displacement: 350 tons surface (420 tons submerged)
Dimensions: 167½ × 16 × 12 feet
Guns: 1—45 mm. AA.
Tubes: 2—21 inch
Machinery: Diesels. B.H.P.: 1,000=13 kts. surface.
Electric motors. H.P.: 800=10 kts. submerged
Oil fuel: 21 tons
Radius: 4,000 miles at 10 kts. surface, 100 miles at 5 kts. submerged
Complement: 24

General
Bulgaria is reported to have acquired three Soviet M V type submarines, M1, M2 and M3, from the U.S.S.R. in 1954; but two were exchanged for two of the "W" class in 1958.

MINESWEEPERS

2 "T 43" Type

Displacement: 500 tons standard (600 tons full load)
Dimensions: 200 × 27½ × 8½ feet
Guns: 4—37 mm. AA., 8—13 mm. AA.
M.G.
Machinery: Diesel motors, 2 shafts. B.H.P.: 3,200=18 kts.
Complement: 60

General
Three "T" class minesweepers are reported to have been transferred from the U.S.S.R. in 1953, of which one was cannibalised.

MINELAYER

I Training Type

Displacement: 2,200 tons
General
A dual purpose minelayer and training ship of new construction is reported being acquired from the U.S.S.R.

PATROL VESSELS

2 "Kronstadt" Type

Displacement: 300 tons standard (350 tons full load)
Dimensions: 167½ × 19½ × 9 feet
Guns: 1—3.4 inch, 2—37 mm. AA., 3—20 mm. AA.
A/S weapons: Depth charge throwers
Machinery: Diesels, 2 shafts, 27 kts.
Oil fuel: 20 tons
Complement: 40

General
Two "Kronstadt" class submarine chasers are reported to have been transferred from the U.S.S.R. in 1957.

2 "Artillerist" Class

Displacement: 240 tons standard (280 tons full load)
Dimensions: 160½ × 19 × 8½ feet
Guns: 1—3 inch, 2—37 mm. AA., 3 M.G.
A/S weapons: 2 depth charge throwers
Machinery: Diesels, 2 shafts. B.H.P.: 3,300=22 kts.
Oil fuel: 18 tons
Complement: 36

General
Two "Artillerist" class submarine chasers were reported to have been transferred from the U.S.S.R. in 1947.

INSHORE MINESWEEPERS

4 "T 301" Type

Displacement: 130 tons standard (180 tons full load)
Dimensions: 100 × 16 × 4½ feet
Guns: 2—37 mm. AA. 2—25 mm. AA.
Machinery: Diesels, 2 shafts, B.H.P.: 480=10 kts.
Complement: 30

General
Four "T 301" class inshore minesweepers were reported to have been transferred from the U.S.S.R. in 1955.

LANDING CRAFT

6 LCS Type

General
Six support landing craft were reported to have been acquired from the U.S.S.R. in 1953.

10 LCU Type

Displacement: 164 feet (o.a.)
Guns: 1—37 mm. AA.

General
Ten utility landing craft are reported to have been built in Bulgaria in 1954. Based on a German Second World War design.

FAST PATROL BOATS

8 "P 4" Type

Displacement: 50 tons
Dimensions: 85½ × 20 × 6 feet
Guns: 4—25 mm. AA.
Machinery: Diesels. B.H.P.: 2,000=42 kts.

General
Eight motor torpedo boats of the "P 4" class are reported to have been transferred from the U.S.S.R. in 1956.

12 PA 2 Type

Displacement: 45 tons
Dimensions: 82 × 16½ × 5½ feet
Guns: 2—25 mm. AA.
Machinery: Speed=40 kts.

General
Former Soviet fast patrol boats of the PA 2 type. Reported to have been acquired from the U.S.S.R. in 1949.

50 PTC Type

General
Small patrol craft. Vary in detail. Number also reported as 30 units.

Disposals
The former old German schnellboote, No. 2, No. 3 (ex-S 201) and No. 4 (ex-S 202) are reported to have been discarded. No. 1 was a war loss while in German hands.
The three very old patrol boats Derzki, Khrabri and Strogi, the patrol boat Rila, and the two very old patrol boats of the SC type, Belomoretz and Chernomoretz, have been discarded.

MINESWEEPING BOATS

24 Small Type

General
Of 24 minesweeping boats, 12 are reported to have been acquired in 1950 and 12 in 1956 for harbour, coastal, inshore and estuarial employment and general purpose duties.

TRAINING VESSELS

ASSEN

Displacement: 240 tons
Guns: 2—65 mm., 1 M.G.
Machinery: H.P.: 120=7 kts.

General
Auxiliary sail training vessel. Launched in 1912. Refitted in 1933-34.

There is also the KAMICIA launched in 1898. Refitted in 1925. Speed, 10 kts. Also fitted with sails.

TUG

I Fleet Type

RAKOYSKI

General
A Soviet-built tug with an overall length of 135 feet.

BURMA

Administration

Vice-Chief of Staff, Defence Services (Navy):
Commodore Thaung Tin.

Naval, Military and Air Attaché in London:
Colonel Thein Doke.
Naval, Military and Air Attaché in Washington:
Colonel Kyi Han.

Personnel

1965: 327 officers and 5,925 ratings,
including all reserves.

FRIGATE

I Ex-British "River" Class

MAYU (ex-H.M.S. *Fal*)

Builders: Smith's Dock Co. Ltd., South
Bank-on-Tees
Laid down: 20 May 1942
Launched: 9 Nov. 1942
Completed: 2 July 1943

Displacement: 1,460 tons standard, (2,170 tons
full load)
Dimensions: 283 (pp.), 301½ (o.a.) × 36½ ×
12 feet
Guns: 1—4 inch D.P., 4—40 mm. AA.
Machinery: Triple expansion, 2 shafts.
I.H.P.: 5,500=19 kts.
Boilers: 2, of 3 drum type
Fuel: 440 tons
Complement: 140

General
"River" class frigate. Acquired from Great Britain in
1947.



MAYU

1962, Burmese Navy, Official

ESCORT MINESWEEPER

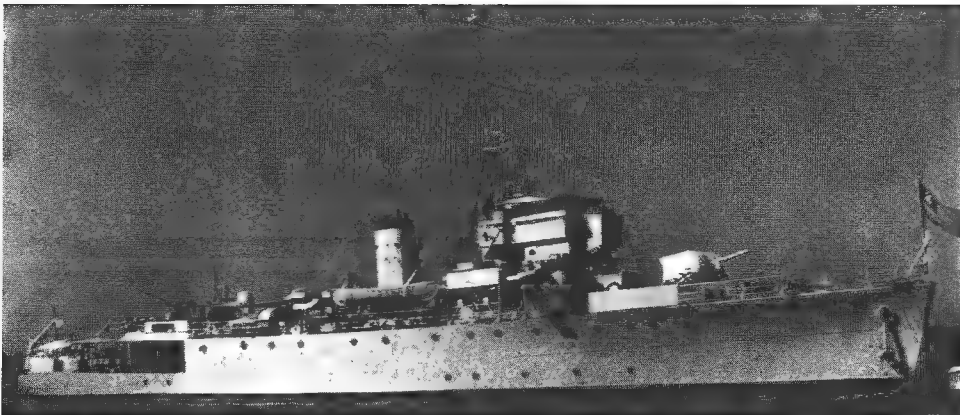
I Ex-British "Algerine" Class

YAN MYO AUNG (ex-H.M.S. *Mariner*, ex-Kincardine)

Builders: Port Arthur Shipyards,
Canada
Laid down: 26 Aug. 1943
Launched: 9 May 1944
Completed: 23 May 1945

Displacement: 1,040 tons standard (1,335 tons
full load)
Dimensions: 225 (pp.), 235 (o.a.) × 35½ ×
11½ (max.) feet
Guns: 1—4 inch 4—40 mm. AA.
Machinery: Triple expansion, 2 shafts.
S.H.P.: 2000=16.5 kts.
Boilers: 2, of 3 drum type
Radius: 4,000 miles
Complement: 140

General
Former ocean minesweeper in the British Navy, of the
corvette type and used as escort vessel. *Mariner*, M 380
was transferred from Great Britain in 1957. Handed
over to Burma in London and renamed *Yan Myo Aung*,
on 18 Apr. 1958. Fitted for minelaying and can carry
16 mines, eight on each side.



YAN MYO AUNG

1964, Burmese Navy, Official

MOTOR TORPEDO BOATS



T 202

1962, Burmese Navy, Official

5 British-Built MTB/MGB Convertible Type

T 201 (ex-PTS 101)	T 203 (ex-PTS 103)	T 205 (ex-PTS 105)
T 202 (ex-PTS 102)	T 204 (ex-PTS 104)	

Displacement: 50 tons standard (64 tons full load)
Dimensions: 67 (pp.), 71½ (o.a.) × 19½ × 6 (max.) feet
Guns: (as MGB) 1—4.5 inch, 1—40 mm. AA.
Tubes: (as MTB) 4—21 inch with 2—20 mm. AA. (twin)
Machinery: 2 Napier Deltic diesels, S.H.P.: 5,000=42 kts.
Complement: 13

Construction
Interchangeable motor torpedo boats/motor gunboats built by Saunders Roe (Anglesey) Ltd., England. Convertible craft of aluminium construction, with riveted skin and aluminium alloy framework. As well as main engines, auxiliary power is also provided by diesels. The Saunders-Roe slow-speed electric drive was fitted to facilitate manoeuvring in the confined inland waters where the craft may be required to operate. Armament and layout of the vessels were similar to the British fast patrol boats of the "Dark" Class. The cost including engines, equipment and spares, of the five boats was over £1,800,000. T 201 was launched on 24 Mar. 1956. All were completed in 1956-57.

A photograph of T 201 of this class appears in the 1956-57 to 1961-62 editions.

Disposals
The former British motor minesweepers MMS 197 and MMS 201 were scrapped in 1957 and 1956, respectively.
The former British boom defence vessel *Barstoke* (lent to Rangoon Port Commission since 1946) was returned to the Royal Navy at Singapore in 1959 and sold.

SUPPORT GUNBOATS



INMA

1962, Burmese Navy, Official

4 Ex-British LCG (M) Type

INDAW	INLAY	INMA	INYA
Displacement: 381 tons	Dimensions: 154½ (o.a.) × 22½ × 7½ feet		
Guns: 2—25 pdr., 2—2 pdr.	Machinery: Paxman Ricardo diesels, 2 shafts. B.H.P.: 1,000=13 kts.		
Complement: 39			

General
Former British LCG (M), Landing craft, gun medium. Employed as gunboats.
A photograph of *Inlay* of this class appears in the 1950-51 to 1961-62 editions.

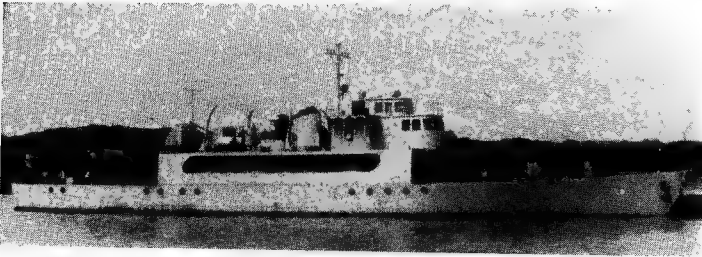
PATROL VESSEL

Ex-U.S.S. FARMINGTON, PCE 894

Displacement: 640 tons standard (903 tons full load)
Dimensions: 180 (w.l.), 184 (o.a.) × 33 × 9½ feet
Guns: 1—3 inch, 50 cal. d.p.; 2—40 mm. AA. (1 twin); 8—
20 mm. AA. (4 twin)
A/S weapons: 1 hedgehog, 2 D.C.T.; 2 D.C. tracks
Machinery: G.M. diesel, 2 shafts. B.H.P.: 1,800=15 kts.

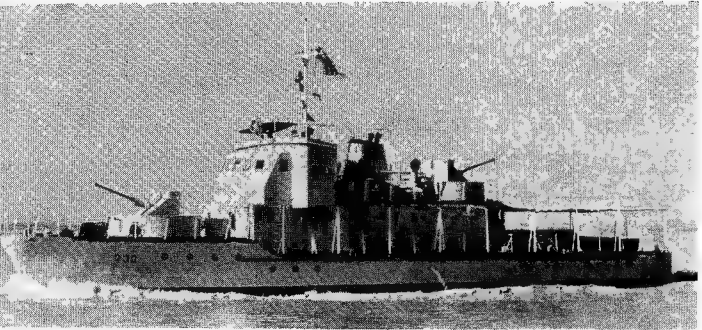
General
Former U.S. patrol ship (escort). Built by Willamette Iron & Steel Corp., Portland, Oregon. Laid down 7 Dec. 1942, launched 15 May 1943, completed 10 Aug. 1964. Transferred 10 June 1965.

RIVER GUNBOATS



NAGAKYAY 1962, Burmese Navy, Official
2 Burmese-Built Large Type

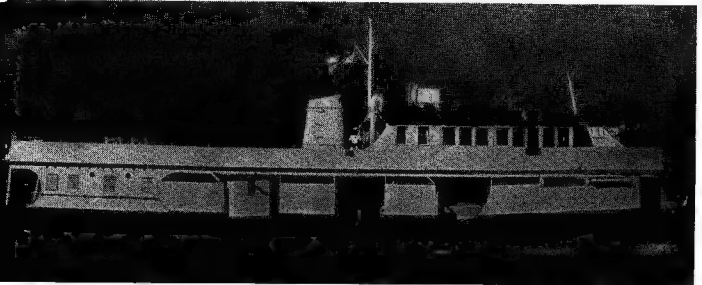
NAGAKYAY **NAWARAT**
Displacement: 400 tons standard (450 tons full load)
Dimensions: 163 x 26½ x 5½ feet
Guns: 2—25 pdr. Q.F., 2—40 mm. AA.
Machinery: 2 Paxman-Ricardo turbo-charged diesels. 2 shafts. B.H.P.: 1,160=12 kts.
Complement: 43
Construction
Built at the Government Dockyard, Dawbon, Rangoon, Burma. Nagakyay was completed on 3 Dec. 1960 and Nawarat on 26 Apr. 1960.



Y 310 1964, Burmese Navy Official
10 Yugoslavian-Built "Y" Type

No.	Laid down	Launched	Completed
Y 301	10 Nov. 1956	25 Mar. 1957	28 Feb. 1958
Y 302	12 Feb. 1957	26 June 1957	26 Mar. 1958
Y 303	14 Apr. 1957	14 Aug. 1957	26 Mar. 1958
Y 304	10 June 1957	17 Aug. 1957	26 Mar. 1958
Y 305	1 July 1957	30 Aug. 1957	10 Oct. 1958
Y 306	22 July 1957	6 Oct. 1957	26 Mar. 1958
Y 307	6 Aug. 1957	30 Oct. 1957	10 Oct. 1958
Y 308	21 Aug. 1957	27 Nov. 1957	10 Oct. 1958
Y 309	11 Sep. 1957	23 Dec. 1957	20 Nov. 1958
Y 310	8 Oct. 1957	28 Dec. 1957	20 Nov. 1958

Displacement: 120 tons
Dimensions: 100 (pp.), 104½ (o.a.) x 24 x 3 feet
Guns: 1—40 mm. AA., 1—2 pdr.
Machinery: 2 Mercedes-Benz diesels. 2 shafts. B.H.P.: 1,000=13 kts.
Complement: 29
Construction
All ten of these boats were built at the Shipyard "Uljanik," Pula, in Yugoslavia.
Photographs
A photograph of Y 301 appears in the 1962-63 and 1963-64 editions.



SAGU 1964, Burmese Navy, Official
9 Converted Transport Type

HINTHA SABAN	SAGU SEINDA	SETKYA SETYAHAT	SHWEPAZUN SHWETHIDA SINMIN
Displacement: 98 tons Dimensions: 94½ x 22 x 4½ feet Guns: 6—20 mm. AA. Machinery: Crossley ERL—6 diesel. B.H.P.: 160=12 kts. Complement: 32			

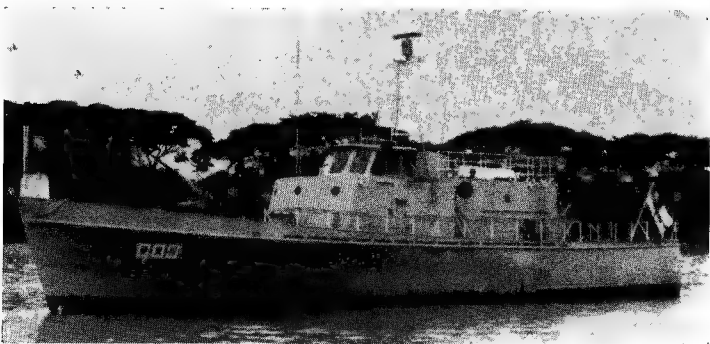
Photographs
A photograph of Shwepazun appears in the 1952-1953 to 1963-64 editions, and of Saban in the 1962-63 and 1963-64 editions.

LANDING CRAFT

8 U.S.-Built LCM Type

LCM 701	LCM 702	LCM 703	LCM 704	LCM 705 LCM 706	LCM 707 LCM 708
Displacement: 28 tons Dimensions: 56 x 14 x 4 feet Machinery: 2 Gray Marine diesel engines. B.H.P.: 225 Complement: 8					

PATROL GUNBOATS



PGM 401 1962, Burmese Navy, Official
6 U.S.-Built PGM Type

PGM 401	PGM 402	PGM 403	PGM 404	PGM 405	PGM 406
Displacement: 100 tons Dimensions: 95 x 19 x 5 feet Guns: 1—40 mm. AA., 2—0.5 U.S. Browning M.G. Machinery: 4 General Motors diesels. 2 shafts. B.H.P.: 1,000=16 kts. Complement: 17					

Construction
Built by the Marinette Marine Corporation, U.S.A. Machinery comprises 2-stroke, 6-cylinder, tandem geared, twin diesel propulsion unit—1 L.H. and 1 R.H. Brake horse power: 500 per unit.

MOTOR GUNBOATS

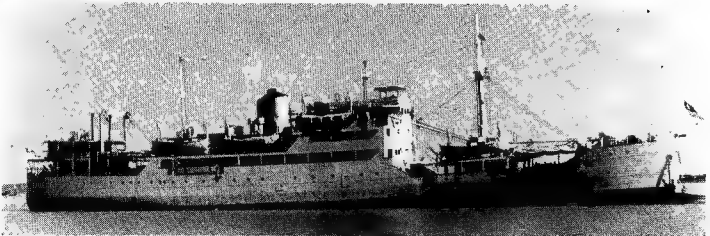


MGB 102 1962, Burmese Navy, Official
7 Ex-United States C.G.C. Type

No.	Builders	Laid down	Launched	Completed
MGB 101	U Tin Shein Bros.	9 Sep. 1959	9 May 1960	29 Nov. 1960
MGB 102	Pretam Singh & Co.	12 Sep. 1959	9 July 1960	30 Aug. 1960
MGB 104	U Tin Shein Bros.	18 Aug. 1959	26 Mar. 1960	29 Nov. 1960
MGB 105	Pretam Singh & Co.	16 Sep. 1959	11 Aug. 1960	9 Sep. 1960
MGB 106	U Chit Sein & Co.	28 Aug. 1959	28 May 1960	28 Nov. 1960
MGB 108	Pretam Singh & Co.	16 Sep. 1959	25 Aug. 1960	9 Sep. 1960
MGB 110	U Chit Sein & Co.	3 Sep. 1959	23 Aug. 1960	28 Nov. 1960

Displacement: 49 tons standard (66 tons full load)
Dimensions: 78 (pp.), 83 (o.a.) x 16 x 5½ feet
Guns: 1—40 mm. AA., 1—20 mm. AA.
Machinery: 4 General Motors diesels. 2 shafts. B.H.P.: 800=11 kts.
Complement: 16
Construction
Ex-U.S.C.G. 83-ft. type cutters with new hulls built in Burma. Machinery comprises 2-stroke, 6-cylinder, tandem geared, twin diesel propulsion units—1 L.H. and 1 R.H. drive. Brake horse power: 400 per unit.

TRANSPORT



PYIDAWAYE	PYIDAWAYE
Measurement: 2,217.31 tons gross Dimensions: 270 x 47 x 15 feet Machinery: Fleming & Ferguson triple expansion steam-engine. I.H.P.: 2,000 Boilers: 2 Scotch (return type) Radius: 2,000 miles Complement: 88	

General
Former passenger ship. In service since 1962. Wears the Burmese naval ensign.
Disposal
The tug Tusa 233 was officially deleted from the list in 1964.

CAMBODIA

Marine Royale Khmere

The Marine Royale Khmere was established on 20 April, 1954.

Administration

Chief of Naval Operations:

Captain (Capitaine de Vaisseau) Pierre Coedés

Personnel

1965: Navy: 1,200 officers and men. Marine Corps: 150 officers and men.

PATROL VESSELS



E 312

1960, United States Navy, Official

2 Ex-U.S. PC Type

E 311 (ex-Flamberge, P 631, ex-PC 1086) E 312 (ex-L'inconstant, P 636, ex-PC 1171)

Displacement: 325 tons standard (400 tons full load)
Dimensions: 170 (w.l.), 173½ (o.a.) × 23 × 6½ feet
Guns: 1—3 inch d.p., 1—40 mm. AA., 5—20 mm. AA.
Machinery: 2 General Motors diesels. 2 shafts. B.H.P.: 3,600=20 kts. (18 kts. sea speed)
Oil fuel: 62 tons
Radius: 6,000 miles at 10 kts.
Complement: 60

General

Former American submarine chasers of the PC type. Transferred from the United States Navy to the French Navy in 1951 and served in Indo-China; and again transferred to the Marine Royale Khmere in 1955-56. Built of steel.

SUPPORT GUNBOAT

1 Ex-U.S. LSIL Type

P 111 (ex-LSIL 9039, ex-LSIL 875)

Displacement: 230 tons standard (387 tons full load)
Dimensions: 169 × 23½ × 5½ feet
Guns: 1—3 inch, 1—40 mm. AA., 2—20 mm. AA.
Machinery: 2 General Motors diesels. 2 shafts. B.H.P.: 1,320=14 kts.
Oil fuel: 110 tons
Radius: 8,000 miles at 12 kts.
Complement: 58

General

Former American infantry landing ship of the LSIL type. Transferred from the United States Navy to the French Navy on 2 Mar. 1951 and stationed in Indo-China; and again transferred to the Marine Royale Khmere in 1957.

There are also 7 landing craft (LCM), 39 armoured craft (LCVP), 2 patrol boats (YP) and 6 auxiliaries (YAG).

TORPEDO BOATS

General

Two torpedo boats are reported to have been presented by Yugoslavia in 1965.

MOTOR GUNBOAT

PGM 70

General

Motor gunboat building in the United States for transfer under the Military Aid Program.

PATROL BOATS

3 Ex-HDML Type

ex-VP 748 (ex-HDML 1228)
ex-VP 749 (ex-HDML 1229)

ex-VP 762 (ex-VP 42)
ex-HDML 1457)

Displacement: 46 tons standard (54 tons full load)
Dimensions: 72 (o.a.) × 16 × 5½ feet
Guns: 2—20 mm. Oerlikon AA., 4—7.5 mm. M.G.
Machinery: 2 diesels. 2 shafts. B.H.P.: 300=12 kts.
Oil fuel: 6 tons
Radius: 2,200 miles at 10 kts.
Complement: 8

General

Former British harbour defence motor launches of the HDML type. Transferred from the British Navy to the French Navy in 1944 (VP 762) and 1950 (VP 748 and VP 749); and again transferred from the French Navy to the Marine Royale Khmere in 1956 (VP 748) and later (other two).

TANK LANDING CRAFT



LCT Type

Ex-French Navy

2 Ex-U.S. LCT(6) Type

ex-LCT 9085 (ex-622)

ex-LCT 9091 (ex-720)

Displacement: 160 tons standard (320 tons full load)
Dimensions: 105 (w.l.), 119 (o.a.) × 32½ × 5 feet
Guns: 1—40 mm. AA., 4—20 mm. AA.
Machinery: 4 Gray diesels. 3 shafts. B.H.P.: 675=8 kts.
Oil fuel: 11 tons
Radius: 700 miles at 7 kts.
Complement: 13

General

Former American tank landing craft of the LCT (6) type. Transferred from the United States Navy to the French Navy for service in Indo-China and again transferred from the French Navy to the Marine Royale Khmere in 1956-57.

There are also ex-U.S.S. YTL 555 and ex-U.S.S. YTL 556, transferred in 1956 by the French.

UTILITY LANDING CRAFT

2 Ex-U.S. LCU Type

HQ 534 (ex-LCU 9089, ex-U.S.S. LCU 783)

ex-LCU 9073, ex-U.S.S. LCU 1420

Displacement: 180 tons standard (360 tons full load)
Dimensions: 115 (w.l.), 119 (o.a.) × 34 × 6 feet
Guns: 2—20 mm. AA.
Machinery: 3 diesels. 3 shafts. B.H.P.: 675=8 kts.
Oil fuel: 12 tons
Radius: 750 miles at 7 kts.
Complement: 12

General

Former United States utility landing craft of the LCU type. Transferred from the U.S. Navy to the French Navy for service in Indo-China; and again transferred from the French Navy to the Marine Royale Khmere in 1954-56.

CAMEROON

Complete independence was proclaimed on 1 Jan. 1960.

PATROL BOATS

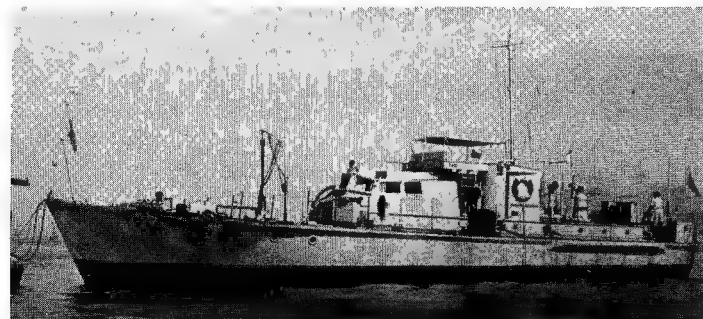
1 Ex-French VC Type

VIGILANTE (ex-VC 6, P 756)

Displacement: 75 tons standard (82 tons full load)
Dimensions: 104½ × 15½ × 5½ feet
Guns: 2—20 mm. AA.
Machinery: 2 Mercedes-Benz diesels. 2 shafts. B.H.P.: 2,700=28 kts.
Radius: 1,500 miles at 15 kts.
Complement: 15

General

Former French seaward defence motor launch of the VC type. Built by Constructions Mécaniques de Normandie, Cherbourg. Completed in 1958. Transferred from France to the Republic of Cameroon on 7 Mar. 1964 (officially handed over).



VP Type

Ex-French Navy

1 Ex-HDML Type

PATRIE DU CAMEROON (ex-VP 768, ex-HDML 1228)

Displacement: 40 tons standard (52 tons full load)
Dimensions: 71 × 15½ × 6 feet
Guns: 2—20 mm. AA., 4 M.G.
Machinery: 2 diesels. 2 shafts. B.H.P.: 300=12 kts.
Radius: 2,200 miles at 10 kts.
Oil fuel: 6.2 tons
Complement: 11

General

Former British harbour defence motor launch of the HDML type. Launched in 1943. Transferred from the British Navy to the French Navy in 1950 for service in Indo-China; and again transferred from the French Navy to the Cameroon Government in 1963 to replace the ex-VP 747, ex-HDML 1423.

ROYAL CANADIAN NAVY

Administration

Minister of National Defence:
The Hon. Paul T. Hellyer, P.C., M.P.
Associate Minister of National Defence:
The Hon. Leo Cadieux, M.P.

On 1 Aug. 1964 the Naval Board was dissolved, and Naval Headquarters, Army Headquarters and Air Force Headquarters were jointly designated Canadian Forces Headquarters.

The only naval member of the new integrated Defence Staff (senior personnel) is:—
Chief of Personnel (and Principal Naval Adviser):

Vice-Admiral K. L. Dyer, D.S.C., C.D.
Naval members among the Deputy Chiefs are:—
Deputy Chief of Operational Readiness:

Rear-Admiral R. P. Welland, D.S.C., and Bar, C.D.

Deputy Comptroller General:
Rear-Admiral C. J. Dillon, C.D.

Naval Member, Canadian Joint Staff, London:
Commodore F. B. Caldwell, C.D., R.C.N.
Naval Member, Canadian Joint Staff, Washington:
Captain V. W. Howland, C.D., R.C.N.

Flag

A new Canadian flag has replaced the Red, White and Blue Ensigns:—

Official description: A red flag of the proportions two by length and one by width, containing in its centre a white square the width of the flag, with a single red maple leaf centered therein.

R.C.N.

Canada's Navy officially came into being on 4 May, 1910, when Royal Assent was granted to the Naval Service Act.

Ships of the Royal Canadian Navy served in three wars. During the First World War the Canadian naval strength was 9,600 officers and men and 100 ships. During the Second World War the R.C.N. expanded to 95,000 officers, men and wrens, and 392 ships, Canada's major naval effort being devoted to the Battle of the Atlantic. Canadian destroyers served in the Far East throughout the Korean War.

Personnel

The strength on 1 Jan. 1965 was 20,158. This breaks down to 2,712 officers, 16,658 men and wrens, 180 apprentices, and 608 officer cadets.

The current ceiling, effective on 31 Mar. 1965, is 20,200.

The Royal Canadian Naval Reserve has been extensively reorganised with the number of reserve training divisions reduced from 21 to 16. The strength of the reserve active list on 1 Jan. 1965 was 2,536, a total made up of 649 officers, 1,744 men and wrens, and 143 University Naval Training Division officer cadets.

Ships

During 1965 the R.C.N. has had 45 ships in commission, as follows:—

Aircraft carrier	1
Destroyer escorts	23
Ocean escorts (frigates)	14
Submarine	1
Operational support ship	1
Escort maintenance ship	1
Diving depot ship	1
Reserve training vessels	3

In addition, two RN submarines of the Sixth Submarine Division have been under R.C.N. operational control.

Ships of the R.C.N. carry a maple leaf on the funnel (or after funnel). The senior ship of a squadron wears a command broad pennant. This is a swallow-tailed pennant, white, with blue borders top and bottom, and bearing the squadron number in blue. "Barber Pole" stripes are painted on the lower structure of the foremast of ships of the Fifth Canadian Escort Squadron, in the tradition of the "Barber Pole Brigade," mid-ocean escort group of the Second World War.

With the proclamation of the new national flag on 15 Feb. 1965 Canadian ships no longer wear the Red, White or Blue Ensigns, the new maple leaf flag fulfilling the functions of jack, ensign and national flag.

Mercantile Marine

Lloyd's Register of Shipping:

Sea: 832 vessels of 611,695 tons gross

Great Lakes: 300 vessels of 1,211,692 tons gross

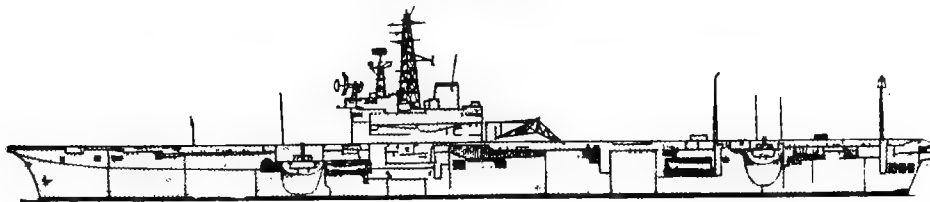
Total: 1,132 vessels of 1,823,387 tons gross

Navy Estimates

1954-55: \$337,281,000	1960-61: \$271,300,000
1955-56: \$326,318,000	1961-62: \$279,900,000
1956-57: \$330,200,000	1962-63: \$287,466,000
1957-58: \$309,040,000	1963-64: \$306,184,000
1958-59: \$280,500,000	1964-65: \$272,892,000
1959-60: \$287,500,000	1965-66: \$292,565,000

Silhouettes

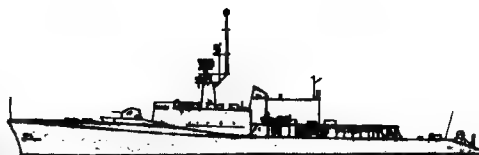
Scale: 150 ft. = 1 inch



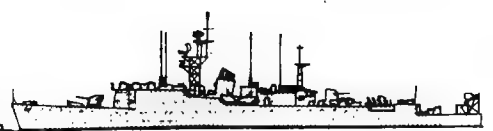
BONAVENTURE



ANNAPOLIS Class



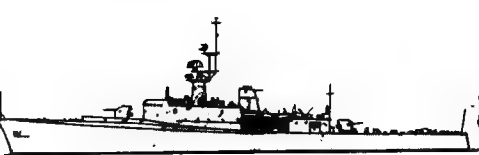
Converted ST. LAURENT Class



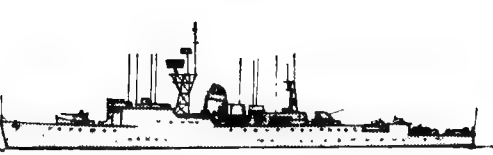
CRESCENT



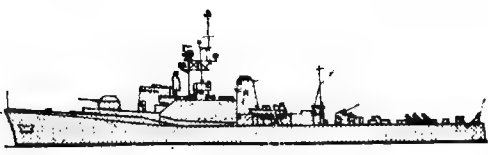
MACKENZIE Class



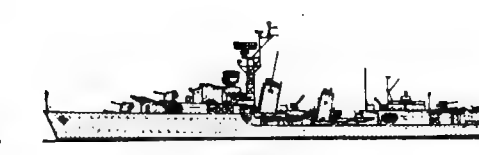
Original ST. LAURENT Class



ALGONQUIN



RESTIGOUCHE Class



ATHABASKAN



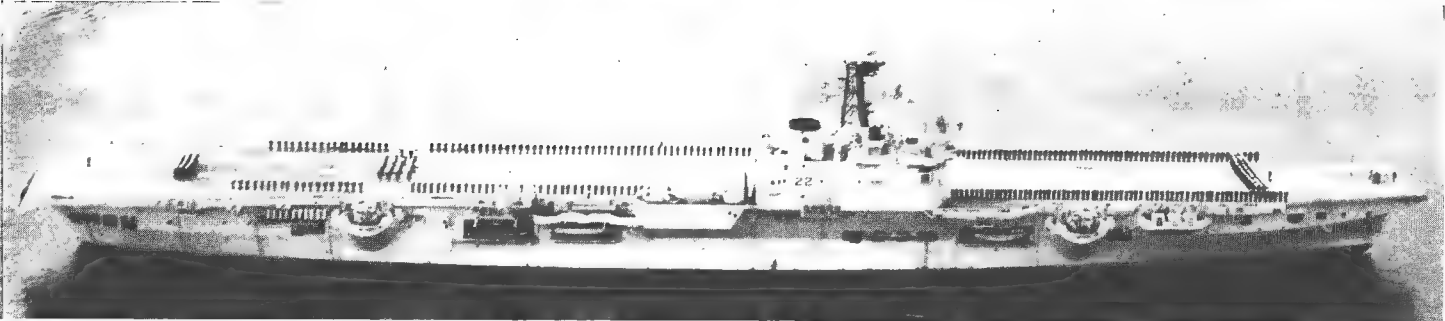
PRESTONIAN Class (Some have deckhouse)

AIRCRAFT CARRIER (CVL)



BONAVENTURE

Added, 1964, Royal Canadian Navy, Official



BONAVENTURE

1963, Royal Canadian Navy, Official

I Modified "Majestic" Class

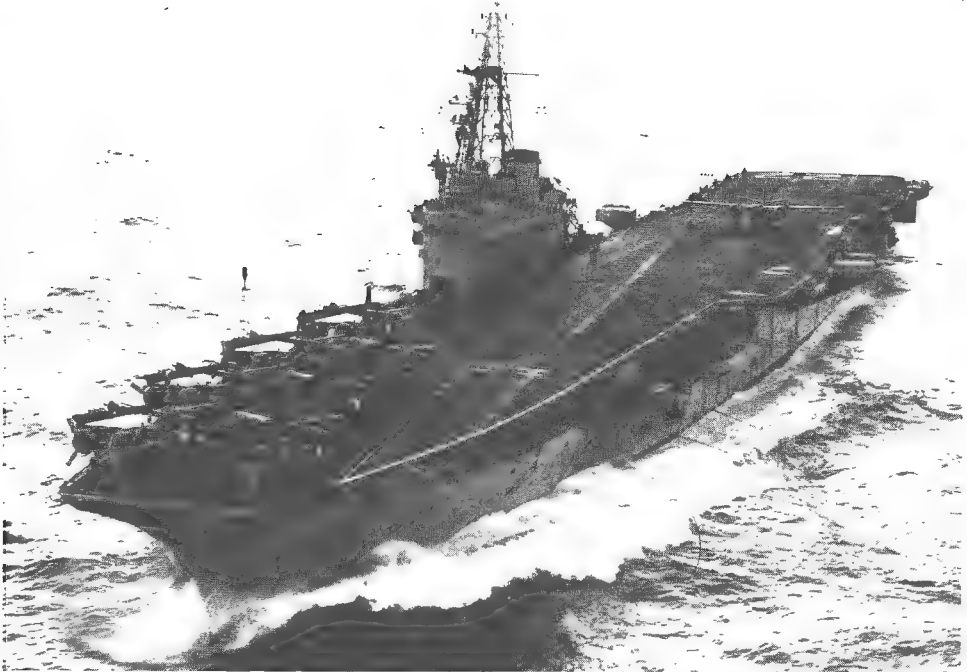
BONAVENTURE (ex-Powerful)	
No.:	CVL 22
Builder:	Harland & Wolff, Ltd., Belfast
Laid down:	27 Nov. 1945
Launched:	27 Feb. 1945
Completed:	17 Jan. 1957
Displacement:	16,000 tons standard (20,000 tons full load)
Dimensions:	Length: 630 (pp.), 704 (o.a.) feet. Beam (hull): 80 feet. Width 112½ feet, 128 (o.a.) feet including angled deck and sponsons. Draught: 25 feet
Guns:	8—3 inch (4 twin mounts) AA. or d.p.; 4—6 pdr. saluting
Aircraft:	21 capacity: Tracker (CS2F-2) aircraft. Sikorsky (HO4-S-3) helicopters are being replaced by CHSS-2 (Sea King) helicopters (one Sikorsky retained as plane guard)
Machinery:	Parsons single-reduction geared turbines. 2 shafts. S.H.P.: 40,000 =24.5 kts. (designed)
Boilers:	4 Admiralty 3-drum type. Steam pressure 350 lb./sq. in.
Complement:	1,370 (war)

General
First aircraft carrier owned by the Royal Canadian Navy. Air recognition number 22 painted on flight deck. The type designator and hull number CVL 22 follows the NATO code and signifies a small ASW aircraft carrier.

Construction
The former British *Powerful* was suspended in May 1946, but purchased by Canada and construction was resumed in July 1952; when she was re-named *Bonaventure*. She was fitted with the British steam catapult and angled deck redesigned to handle jet aircraft, plans being revised to provide for a modern aircraft carrier; the modification included strengthening the flight deck and elevators and improving arrestor gear.

Photographs

Starboard bow view in the 1957-58 edition. Starboard broadside and port bow views in the 1958-59 edition. Starboard quarter oblique aerial view, showing angled deck, in the 1958-59 to 1960-61 editions. Dead overhead aerial plan view showing flight deck in the 1957-58 to 1962-63 editions. Port broadside surface view in the 1959-60 to 1963-64 editions.

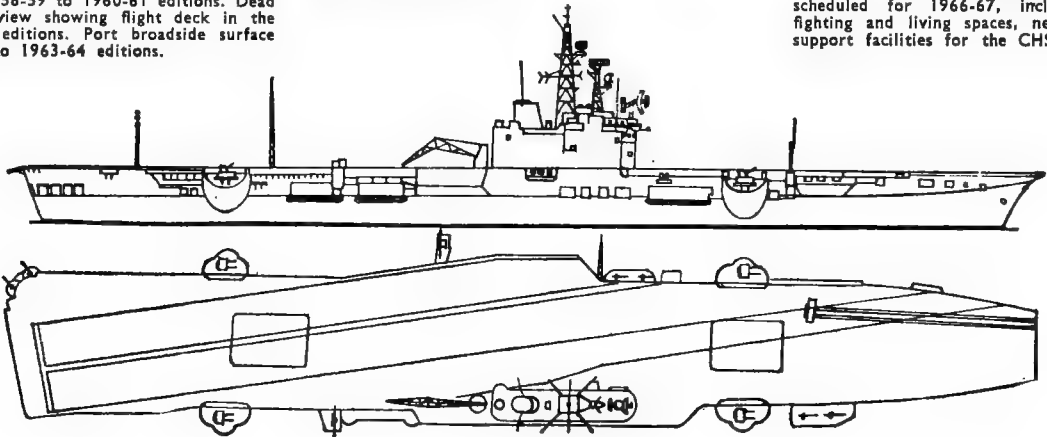


BONAVENTURE

1961, Royal Canadian Navy, Official

Drawing
Starboard elevation and plan. Redrawn in 1959. Scale: 128 feet=1 inch.

Modernisation
Under the Five-Year Equipment Programme announced on 22 Dec. 1964 a major refit of *Bonaventure* is scheduled for 1966-67, including rearrangement of fighting and living spaces, new radars, and improved support facilities for the CHSS2 helicopters.



DESTROYER ESCORTS (DDE) Anti-Submarine Frigate Type



ANNAPOLIS

1965, Royal Canadian Navy Official

- 2 "Annapolis" Class
- ANNAPOLIS
MACKENZIE
QU'APPELLE
- NIPIGON
SASKATCHEWAN
YUKON
- 4 "Mackenzie" Class
- 7 "Restigouche" Class

CHAUDIERE COLUMBIA	GATINEAU KOOTENAY	RESTIGOUCHE ST. CROIX TERRA NOVA
Displacement:	2,366 tons standard (2,900 tons full load)	
Dimensions:	366 (o.a.)×42×13½ feet	
Guns:	2—3 inch, 70 cal. AA. (1 twin) forward, 2—3 inch, 50 cal. AA. (1 twin) aft. (Qu'Appelle has 3 inch, 50 cal. fore and aft; Anna polis and Nipigon have 3 inch, 50 cal forward only)	
A/S weapons:	2 Limbo three-barrelled depth charge mortars in after well (one Limbo in Annapolis and Nipigon), homing torpedoes	
Machinery:	Geared turbines, 2 shafts. S.H.P.: 30,000=28 kts. (official figure)	
Boilers:	2 water tube	
Complement:	246 (12 officers, 234 ratings)	

General
These ships were developed from the original "St. Laurent" class, but there are considerable differences in the three classes.

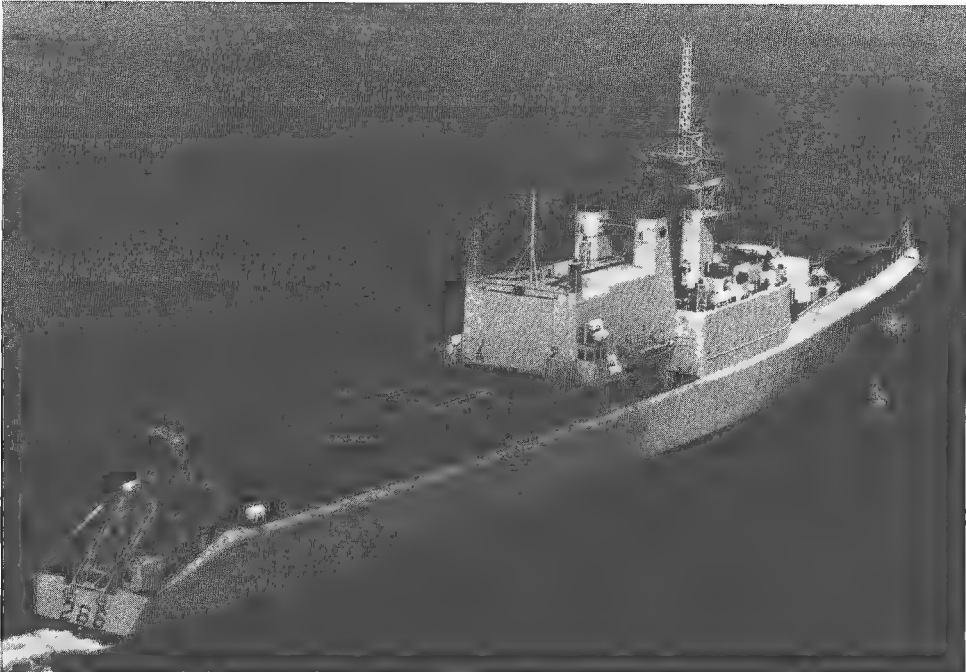
Class Variation
In providing helicopter platforms and hangars in Annapolis and Nipigon, which also incorporate variable depth sonar and cutaway stern (see photo) it was possible to provide for only one Limbo and one twin 3 inch, 50 cal gun.

Design Improvement
New features of the "Mackenzie" class include improved habitability through design change, and reduced complement; vinyl-asbestos tile deck covering, instead of linoleum throughout the ship; improved air conditioning; replacement of hot fresh water tanks by instantaneous heaters; extension of pre-wetting system (to counter radio-active fallout) to cover entire exposed area of the ship; standard water-tight doors replaced by new type called "Dutch" door; heated wipers for bridge windows redesigned to cope with extreme temperature in northern waters.

Conversion
Commencing in 1966 the seven "Restigouche class ships will be progressively converted to carry variable depth sonar, advanced electronic equipment and, eventually, Asroc, the rocket-assisted homing torpedo delivery system. Terra Nova will be the first to be taken in hand in Mar. 1966. Initially Asroc will not be installed. The conversion will increase the overall length of the ships from 366 to 371 feet.

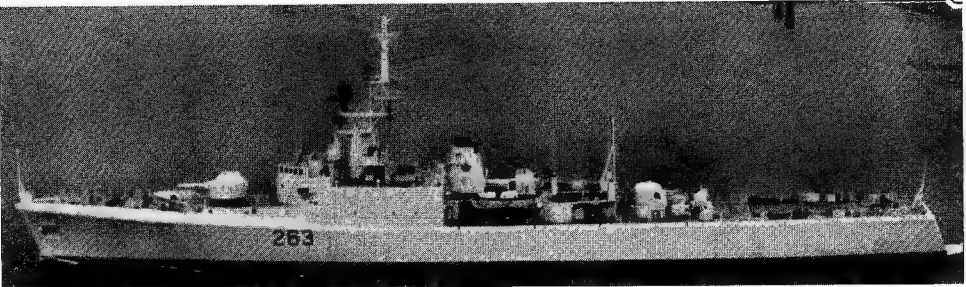
Photographs
Starboard broadside view of Restigouche in the 1958-59 edition. Starboard bow oblique aerial view of Terra Nova and port quarter surface view of Columbia in the 1960-61 to 1962-63 editions. Port broadside aerial view of Kootenay in the 1959-60 to 1962-63 editions. Starboard broadside aerial view of Saskatchewan in the 1963-64 edition. Port quarter oblique aerial view of Mackenzie and port broadside surface view of Gatineau in the 1963-64 and 1964-65 editions.

Construction
Because of the unit construction method used, it is impossible to give a true "laid down" date. A ship may be under construction for three or four months before anything appears on the ways. The "work commencement" schedule for the "Repeat Restigouche" or "261" class is shown in the table.
* Saskatchewan was launched by Victoria Machinery Depot Co. Ltd., but completed by Yarrow's Ltd.



NIPIGON (showing variable depth sonar, cutaway stern, helicopter platform, and hangar)

1965, Royal Canadian Navy, Official



YUKON

1964, Royal Canadian Navy Official

Name	No.	Builders	Laid down	Completed	Launched
Chaudiere	DDE 235	Halifax Shipyards Ltd., Halifax	30 July 1953	13 Nov. 1957	14 Nov. 1959
Gatineau	DDE 236	Davie Shipbuilding & Repairing	30 Apr. 1953	3 June 1957	17 Feb. 1959
St. Croix	DDE 256	Marine Industries Ltd., Sorel, Q.	15 Oct. 1954	17 Nov. 1957	4 Oct. 1958
Restigouche	DDE 257	Canadian Vickers Ltd., Montreal	15 July 1953	22 Nov. 1954	7 June 1958
Kootenay	DDE 258	Burrard D.D. & Shipbuilding	21 Aug. 1952	15 June 1955	6 June 1959
Terra Nova	DDE 259	Victoria Machinery Depot Co.	14 Nov. 1952	21 June 1955	6 June 1959
Columbia	DDE 260	Burrard D.D. & Shipbuilding	11 June 1953	1 Nov. 1956	7 Nov. 1959
Mackenzie	DDE 261	Canadian Vickers Ltd., Montreal	15 Dec. 1958	25 May 1961	6 Oct. 1962
*Saskatchewan	DDE 262	Victoria Machinery (and Yarrow)	July 1959	1 Feb. 1961	16 Feb. 1963
Yukon	DDE 263	Burrard D.D. & Shipbuilding	Oct. 1959	27 July 1961	25 May 1963
Qu'Appelle	DDE 264	Davie Shipbuilding & Repairing	Jan. 1960	2 May 1962	14 Sep. 1963
Annapolis	DDE 265	Halifax Shipyards Ltd., Halifax	July 1960	27 Apr. 1963	19 Dec. 1964
Nipigon	DDE 266	Marine Industries Ltd., Sorel, Q.	Apr. 1960	10 Dec. 1961	30 May 1964

Destroyer Escorts (DDE) Anti-Submarine Frigate Type—continued



ASSINIBOINE (with helicopter)

1965, Royal Canadian Navy, Official



ST. LAURENT (after conversion to a revised design)

7 "St. Laurent" Class

Displacement: 2,263 tons standard (2,800 tons full load)
Dimensions: 366 (o.a.)×42×13½ feet
Guns: 2—3 inch 50 cal. AA. (1 twin)
A/S weapons: 2 Limbo three-barrelled depth charge mortars in after well.
Machinery: Homing torpedoes
Geared turbines. 2 shafts, S.H.P.: 30,000=28.5 kts. (official figure)
Boilers: 2 water tube
Complement: 250 (13 officers, 237 ratings)

General
Officially classed as major warships and as such were the first to be designed completely in Canada. These anti-submarine escort vessels of a high-speed type were built primarily for the detection and destruction of modern fast submarines. In evolving their design much assistance was received from the Royal Navy and the United States Navy. In function the vessels supersede the frigates of the Second World War and like the latter their design was worked out so that in the event of emergency they could be produced rapidly and in quantity. In speed, manoeuvrability and weapons the ships fulfil all the requirements of their class for modern sea warfare. The design provided for flush deck, low bridge, considerable use of aluminium instead of steel for the superstructure, fittings and furniture and compartmented hull.

Reconstruction
All seven ships of the "St. Laurent" class have been or are being fitted with helicopter platforms and VDS. St. Laurent was equipped with VDS late in 1961, and platform added later. Twin funnels were stepped to permit the forward extension of the helicopter hangar. Gunhouses are of fibre glass. In providing helicopter platforms and hangars in the converted "St. Laurent" class ships it was possible to retain only one three-barrelled Limbo mount and only one twin 3-inch 50 cal. gun mount. Dates of recommissioning after conversion:—Assiniboine 28 June 1963, St. Laurent 4 Oct. 1963, Ottawa 21 Oct. 1964.

Anti-Submarine
The ships have long range sonar to probe for submarines and improved armament and electronic equipment as submarine chasers.

			1964, Royal Canadian Navy, Official					
Name	No.	Builders	Laid down		Launched		Completed	
ST. LAURENT	DDE 205	Canadian Vickers, Ltd., Montreal	22 Nov. 1950	20 Nov. 1951	29 Oct. 1955			
SAGUENAY	DDE 206	Halifax Shipyards, Ltd., Halifax	4 Apr. 1951	30 July 1953	15 Dec. 1956			
SKEENA	DDE 207	Burrard Dry Dock & Shipbuilding	1 June 1951	19 Aug. 1952	30 Mar. 1957			
OTTAWA	DDE 229	Canadian Vickers, Ltd., Montreal	8 June 1951	29 Apr. 1953	10 Nov. 1956			
MARGAREE	DDE 230	Halifax Shipyards Ltd., Halifax	12 Sep. 1951	29 Mar. 1956	5 Oct. 1957			
*FRASER	DDE 233	Yarrows, Ltd., Esquimalt, B.C.	11 Dec. 1951	19 Feb. 1953	28 June 1957			
ASSINIBOINE	DDE 234	Marine Industries Ltd., Sorel, Q.	19 May 1952	12 Feb. 1954	16 Aug. 1956			



OTTAWA (after conversion)

1965, Royal Canadian Navy, Official

Original Construction
Design work started in 1949. Construction was delayed because the ships were subjected to constant changes due to international development in submarines and torpedoes.

Photographs
Starboard quarter view of St. Laurent and broadside view of Ottawa as first completed in 1957-58 edition. Starboard quarter oblique aerial view of Ottawa with experimental helicopter platform laid on aft, in the 1958-59 and 1959-60 editions. Port bow oblique aerial view of Saguenay in the 1957-58 to 1959-60 editions. Port broadside aerial view of Margaree in the 1958-59 to 1961-62 editions. Port broadside view of Skeena in the 1962-63 to 1964-65 editions. Port broadside surface view of Assiniboine after reconstruction in the 1963-64 edition. Starboard bow surface view of Assiniboine carrying helicopter in the 1964-65 edition.

Gunnery
The original armament was 4—3 inch, 50 cal. AA. (2 twin), 2—40 mm. AA. (single), and 2 Limbos.

Engineering
Propelling machinery is of British design. Yarrow & Co. Ltd., Scotstoun, Glasgow, supplied Canadian Vickers with a complete set of machinery for St. Laurent, the other ships being supplied with similar machinery manufactured in Canada. The main turbines and condensers are of English Electric design.

Appearance
The converted ships of the "St. Laurent" class resemble Annapolis and Nipigon (see previous page) but there are slight variations in funnel height and rake, etc.

Building
* Fraser was launched by Burrard Dry Dock Co. Ltd., but completed by Yarrows Ltd.

Destroyer Escorts (DDE)—continued

I "Tribal" Class

ATHABASKAN

No.:	DDE 219
Builders:	Halifax Shipyards, Ltd., Halifax
Laid down:	15 May 1944
Launched:	4 May 1946
Completed:	20 Feb. 1948
Displacement:	2,200 tons standard (2,800 tons full load)
Dimensions:	355½ (pp.), 377 (o.a.)×37½×9½, 15½ (aft full load) feet
Guns:	4—4 inch, 2—3 inch, 4—40 mm. AA.
Tubes:	4—21 inch
A/S weapons:	2 Squid triple-barrelled depth charge mortars
Machinery:	Parsons geared turbines, 2 shafts, S.H.P.: 44,000=36.5 kts. designed (32 kts. sea speed)
Boilers:	3 Admiralty 3-drum type
Oil fuel:	520 tons
Radius:	1,700 miles at 20 kts.
Complement:	240

General

Sole operational survivor of eight "Tribal" class destroyers (four built in Canada at Halifax Shipyards, Ltd., Halifax, and four in Great Britain at Vickers-Armstrongs, Ltd., Tyne) seven of which (the eighth was a war loss) were converted into destroyer escorts for anti-submarine warfare in 1953-1955. *Athabaskan* was again extensively refitted in 1958.

Disposals

Of her sister ships *Iroquois* was paid off to operational reserve on 24 Oct. 1962, *Huron* on 30 Apr. 1963 and *Halda* on 11 Oct. 1963 (all declared for



ATHABASKAN

1964, Royal Canadian Navy, Official

disposal in 1964); *Nootka* was paid off for disposal on 6 Feb. 1964, *Cayuga* on 27 Feb. 1964 and *Micmac* on 31 Mar. 1964.

Second World War loss

Athabaskan (first ship of the name, built in Great Britain).

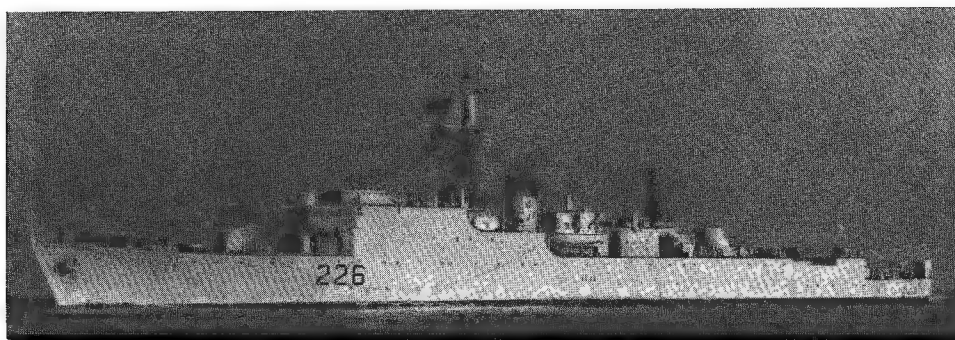
"Algonquin" Class
("Cr" Type)

CRESCENT

No.:	DDE 226
Builders:	John Brown & Co. Ltd., Clydebank
Laid down:	16 Sep. 1943
Launched:	20 July 1944
Completed:	21 Sep. 1945
Displacement:	2,100 tons standard (2,700 tons full load)
Dimensions:	339½ (pp.), 362½ (o.a.)×35½×13½ (aft full load) feet
Guns:	2—4 inch (twin mount) forward, 2—3 inch (twin mount) aft (now in shield), 2—40 mm. Bofors AA.
A/S weapons:	1 Limbo three-barrelled depth charge mortar, 3 launchers for Mark 43 homing torpedoes
Machinery:	Parsons geared turbines, 2 shafts, S.H.P.: 40,000=36.75 kts. (designed 31.25 kts. sea speed)
Boilers:	2 Admiralty 3-drum type
Oil fuel:	580 tons
Radius:	2,800 miles at 20 kts.
Complement:	250

General

Originally a "Cr" class destroyer lent to the Royal Canadian Navy in 1945 and permanently transferred



CRESCENT

1964, Wright & Logan

from Great Britain in 1951. Fully converted into a fast anti-submarine escort by Esquimalt Dockyard in 1956. Extensively refitted in 1958. Modified considerably in 1960 when one Limbo was removed to compensate for the weight of the variable depth sonar installed, shield fitted to 3 inch mounting, and torpedo launchers added.

Anti-Submarine

The experimental variable depth sonar equipment formerly installed in *Crusader* was transferred to *Crescent*, but this was replaced in 1961 by prototype equipment for standard production and operation.

Appearance

Crescent is generally very similar to *Algonquin* except that the main armament is mounted vice versa, i.e. 4 inch guns are mounted forward and the 3 inch guns in the after position.

Disposal

Original sister ship *Crusader*, partially converted into a fast anti-submarine escort, was declared surplus in 1963 and turned over to the Crown Assets Disposal Corporation.

"Algonquin" Class
("V" Type)

ALGONQUIN (ex-Valentine, ex-Kempfenfelt)

No.:	DDE 224
Builders:	John Brown & Co. Ltd., Clydebank
Laid down:	8 Oct. 1942
Launched:	2 Sep. 1943
Completed:	28 Feb. 1944
Displacement:	2,100 tons standard (2,700 tons full load)
Dimensions:	339½ (pp.), 362½ (o.a.)×35½×13½ (aft full load) feet
Guns:	2—4 inch (twin mount) aft, 2—3 inch (twin mount) forward, 2—40 mm. Bofors AA.
A/S weapons:	2 Squid triple-barrelled depth charge mortars
Machinery:	Parsons geared turbines, 2 shafts, S.H.P.: 40,000=36.75 kts. (designed 31.25 kts. sea speed)
Boilers:	2 Admiralty 3-drum type
Oil fuel:	580 tons
Radius:	2,800 miles at 20 kts.
Complement:	230

General

Originally a "V" class destroyer transferred from Great Britain in 1944. Fully converted into a fast anti-submarine escort by Esquimalt Dockyard in 1954.



ALGONQUIN

1964, Wright & Logan

Classification

Algonquin and *Crescent*, although they differ, were officially designated "Destroyer Escorts—Algonquin Class (DDE)" in 1956.

Appearance

Algonquin has her 4 inch twin gun mounting aft and 3 inch twin gun mounting forward instead of vice versa as in *Crescent* (see above). She now has a shield to her 3 inch guns.

Disposal

Original sister ship *SiouX* (ex-H.M.S. *Vixen*), partially converted into a fast anti-submarine escort, was paid off for disposal on 30 Oct. 1963.

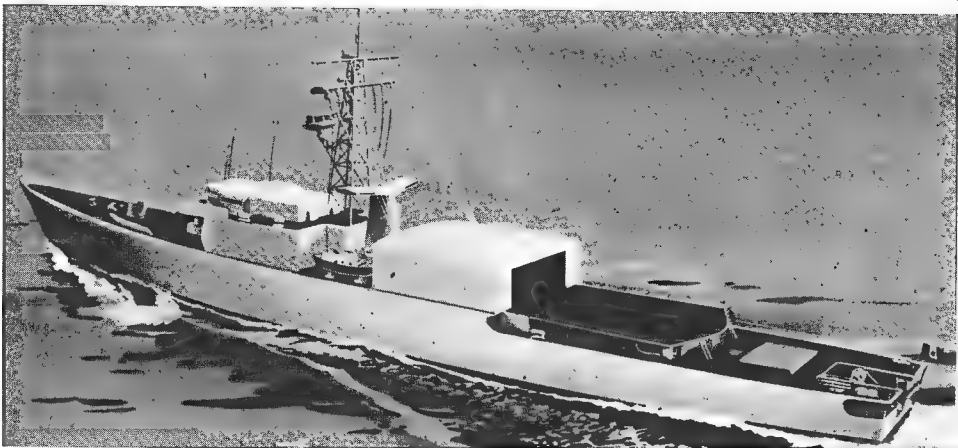
Cancellation

The projected eight large general purpose frigates were cancelled at the end of 1963 (see full particulars and photograph of the model in the 1963-64 edition).

DESTROYER HELICOPTER CARRIERS (DDH)

4 Projected Anti-Submarine Type
Displacement: 3,800 tons full load
Dimensions: 398×48×14 feet
Guns: 1—5 inch L.A. (Single)
Aircraft: 2 CHSS 2 Sea King anti-submarine helicopters
A/S weapons: 1 Limbo three-barrelled mortar
2 twin homing torpedo tubes
Machinery: Geared turbines. 2 shafts. S.H.P.: 30,000=27 kts.
Radius: 4,500 miles at economical speed

General
It will be observed that these ships have the same hull design, dimensions and basic characteristics as the large general purpose frigates cancelled at the end of 1963 (see particulars and illustration in the 1963-64 edition). Designed as anti-submarine ships they will be fitted as leaders, with variable depth and conventional sonar, landing deck equipped with double hauldown and beartrap, Flume type anti-rolling tanks to stabilise the ships at low speed, pre-wetting system to counter radio-active fallout, enclosed citadel, bridge control of machinery, automatic combustion control in boilers. Provision is being made for the future fitting of a short range anti-aircraft missile. It is hoped to place the contract for the lead ship in Dec. 1966, with construction to begin early in 1967.



NEW DDH (Model)

1965, Royal Canadian Navy, Official

OCEAN ESCORTS (DE)

14 "Prestonian" Class
Modernised "River" Type

Name	No.	Launched
ANTIGONISH	DE 301	10 Feb. 1944
BEACON HILL	DE 303	6 Nov. 1943
CAP DE LA MADELEINE	DE 317	13 May 1944
INCH ARRAN	DE 308	6 June 1944
JONQUIERE	DE 318	28 Oct. 1943
LA HULLOISE	DE 305	29 Oct. 1943
NEW GLASGOW	DE 315	5 Mar. 1943
NEW WATERFORD	DE 304	3 July 1943
OUTREMONT	DE 310	3 July 1943
STE. THERESE	DE 309	16 Oct. 1943
STETTLER	DE 311	10 Sep. 1943
SUSSEXVALE (ex-Valdorian)	DE 313	12 July 1944
SWANSEA	DE 306	19 Dec. 1942
VICTORIAVILLE	DE 320	23 June 1944
Displacement:	1,570 tons standard (2,360 tons full load)	
Dimensions:	301½ (o.a.)×36½×16 feet	
Guns:	2—4 inch, 6—40 mm. AA.	
A/S weapons:	2 Squid triple-barrelled depth charge mortars	
Machinery:	Triple expansion. 2 shafts. I.H.P.: 5,500=19 kts.	
Boilers:	2 Admiralty 3-drum type	
Oil fuel:	720 tons	
Radius:	9,600 miles at 12 kts.	
Complement:	140	

General
Originally of similar design to the British "River" class. All built in Canadian shipyards. All of this class, including three vessels transferred to Norway, were modernised and reconstructed to flush deckers (completed anti-submarine conversion in 1953-58). All were redesignated FFE (instead of PF) in 1953, and were again redesignated, as DE, in 1964.

Reconstruction
In the original form the forecastle deck extended about two-thirds of the length with low freeboard aft, but in 1953-58 it was extended right aft, the extension being well-sided. The extra space was devoted to improved habitability and to equipment for detecting and fighting submarines including some of the generating machinery which was changed from three steam and one diesel to two steam and two diesel, of greatly increased capacity. The former comparatively small bridge structure was replaced by a much larger one, almost totally enclosed, demanding a taller funnel to clear it. The new gear also necessitated a much bigger mast although still a tripod. The propelling machinery was thoroughly overhauled and some improvement effected. The hull forward was strengthened against ice, and all the accommodation improved.

Photographs
A photograph of Beacon Hill before alteration appears in the 1958-59 and 1959-60 editions, of Antigonish in the 1958-59 and 1959-60 editions, of Sussexvale in the 1960-61 to 1964-65 editions, and of Inch Arran, in the 1961-62 to 1964-65 editions.

Training
The seven frigates of the Fourth Canadian Escort Squadron were fitted with a midship deckhouse to provide classrooms and messing facilities for officer cadets under sea training. The ships thus fitted were Antigonish, Beacon Hill, Jonquiere, New Glasgow, Ste. Therese, Stettler and Sussexvale. The anti-submarine capabilities of the ships were not affected.

Transfers
Penetang (ex-Rouyn), Prestonian (ex-Beauharnois), and Toronto (ex-Gifford) were lent to Norway in 1956, being renamed Draug, Troll and Garm, respectively, and transferred outright to Norway on 27 June 1958.

Disposals
Of this class Lauzon (ex-Glace Bay), DE 322, was declared surplus and paid off on 24 May 1963, and Buckingham (ex-Royal Mount), DE 314, Fort Erie (ex-La Tuque), DE 312, and Lanark, DE 321, were paid off for disposal in spring 1965.

Weather Ships
All three of the Canadian "River" Type Frigates (FFE) serving as Weather Ships, St. Catharines, St. Stephen and Stonetown, were transferred to the Canadian Coast Guard.



STETTLER (fitted as training ship)

1965, Royal Canadian Navy, Official



NEW WATERFORD (no midship deckhouse)

1965, courtesy Godfrey H. Walker, Esq.



NEW GLASGOW (with midship deckhouse)

1962, Royal Canadian Navy, Official

SUBMARINES (SS)

3 New Construction
British—Built "O" Type

OJIBWA (ex-Onyx)	OKANAGAN	ONONDAGA
Displacement:	1,610 tons standard, 2,030 tons surface, 2,410 tons submerged	
Dimensions:	295½ (o.a.), 241 (pp.)×26½×18 feet	
Tubes:	8—21 inch, internal (6 bow and 2 stern)	
Machinery:	Admiralty Standard Range diesels. Electric drive. H.P.: 2,400=12 kts. surface, H.P. 3,600=16 kts. submerged	
Complement:	65 (7 officers, 58 ratings)	

General
The first of these attack submarines was obtained by the Canadian Government from the Royal Navy construction programme. She was laid down as *Onyx* but launched as *Ojibwa*. Scheduled to be completed in Sep. 1965. Two submarines of the same class are being built for commissioning in 1967 and 1968. There are some design changes to meet specific new requirements including installation of R.C.N. communications equipment and enlargement of de-icing and air-conditioning systems to meet the wide extremes of climate encountered in Canadian operating areas. All built at H.M. Dockyard, Chatham, England.

Nomenclature
The name *Ojibwa* is that of a tribe of North American Indians now widely dispersed in Canada and the U.S.A. and one of the largest remnants of aboriginal population.



OJIBWA

1964, Royal Canadian Navy Official

Procurement

The procurement of three submarines for the Royal Canadian Navy was announced by the Minister of National Defence on 11 Apr. 1962, all three to be of the "Oberon" class built in Great Britain.

Name	Laid down	Launched	Completed
<i>Ojibwa</i>	27 Sep. 1962	29 Feb. 1964	
<i>Okanagan</i>	25 Mar. 1965		
<i>Onondaga</i>	18 June 1964		

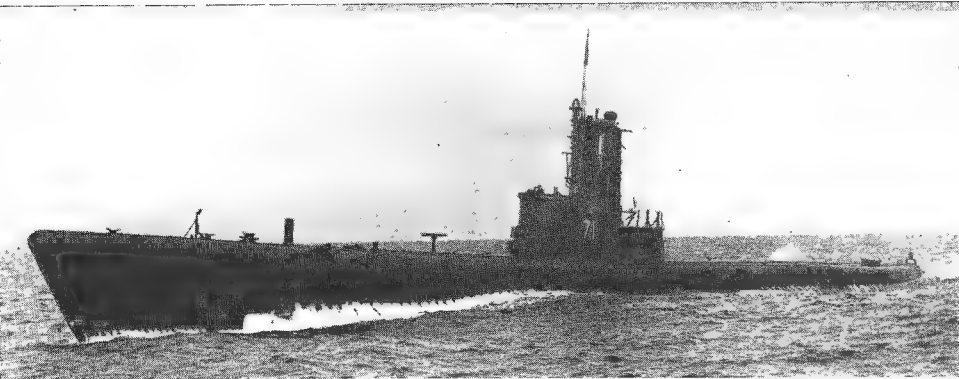
1 Ex-U.S. "Balao" Class

GRILSE (ex-U.S.S. *Burrfish*, SSR 312, ex-*Amillo*)

Pennant No.:	SS 71
Builders:	Electric Boat Co., Groton
Launched:	18 June 1943
Completed:	14 Sep. 1943
Displacement:	1,526 tons standard, 1,816 tons surface (2,425 tons submerged)
Dimensions:	311½×27×17 feet
Tubes:	6—21 inch
Machinery:	Diesels. B.H.P.: 6,500=20 kts. (surface) Electric motors. S.H.P. 4,610=10 kts. (submerged)
Oil fuel:	300 tons
Radius:	12,000 miles at 10 kts.
Complement:	7 officers, 72 men (additional accommodation for 2 officers, 9 men)

General
Former United States submarine of the converted "Balao" class. Loaned to the Royal Canadian Navy for five years, with the option of renewal. Commissioned as H.M.C.S. *Grilse* at New London, Connecticut, on 11 May 1961. Based at Esquimalt, B.C. to carry out anti-submarine warfare training duties with aircraft and ships of the Pacific Maritime Command. Antennae and equipment associated with her former radar picket duties have been removed, and no deck gun is mounted.

Photographs
A photograph of *Grilse* (as U.S.S. *Burrfish*, before refit and transfer to the Royal Canadian Navy) appears in the 1962-63 edition.



GRILSE (after refit and transfer)

1962, Royal Canadian Navy, Official

Future Programme

An official announcement on 22 Dec. 1964 stated: Towards the end of the five year programme it is planned to acquire a conventionally powered submarine to replace H.M.C.S. *Grilse*, the ASW training submarine on loan from the U.S.A. and based on the west coast.

Royal Navy Division

Submarines serving with the Sixth Submarine Division of the Royal Navy at Halifax for anti-submarine training of ships of the Royal Canadian Navy and Canadian Maritime Air Forces are manned, in part, by Royal Canadian Navy personnel.

OPERATIONAL SUPPORT SHIP (AOR)

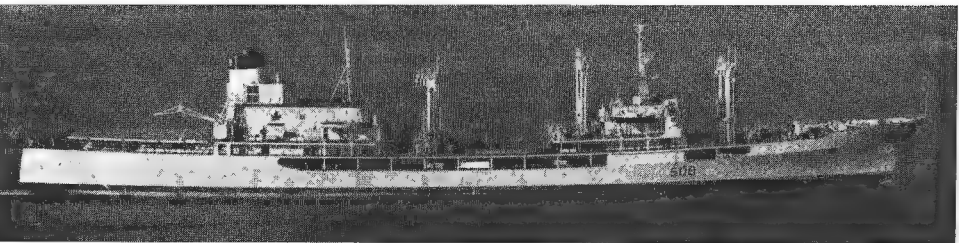
Helicopter Carrier and Supply Ship

PROVIDER

Pennant No.:	AOR 508
Builders:	Davie Shipbuilding Limited, Lauzon, Quebec
Laid down:	1 May 1961
Launched:	5 July 1962
Completed:	28 Sep. 1963
Displacement:	7,300 tons light (22,000 tons full load)
Measurement:	20,000 tons gross, 14,700 tons deadweight
Dimensions:	523 (pp.), 555 (o.a.)×76×32 (max.) feet
Aircraft:	6 Sikorsky helicopters
Machinery:	Double reduction geared turbine. 1 shaft. S.H.P.: 21,000=20 kts.
Boilers:	2 water tube
Oil fuel:	1,200 tons
Radius:	5,000 miles at 20 kts.
Complement:	142 (11 officers and 131 ratings)

General
It was announced on 15 Apr. 1958 that the construction of this ship for the Royal Canadian Navy had been authorised. Preliminary construction work began in Sep. 1960. Commissioned for service on 28 Sep. 1963. Cost: \$1,700,000.

Nomenclature
Provider is the name borne during the Second World War by a RCN Fairmile motor launch parent ship. Formerly rated as a Fleet Replenishment Ship, but officially reclassified as an Operational Support Ship in 1965.



PROVIDER

1964, Royal Canadian Navy, Official

Design

The clean, streamlined appearance of the hull follows a design to achieve high speed while fulfilling replenishments with the fleet on operations. The forward bridge structure contains the commanding officers' accommodation as well as a modern eight-berth hospital. In the superstructure also are the wheelhouse, chartroom and three positions from which there is complete control of this ship—the command control position and the two bridge wing positions. The helicopter flight deck is aft with the hangar located on this deck and immediately below the funnel. At least six Sikorsky helicopters of the type at present in service in the Royal Canadian Navy can be accommodated in the hangar space. The flight deck is capable of receiving the largest and heaviest types of helicopter. Immediately below the flight deck are two accommodation decks for the ship's company including the main galley and combined mess-recreation spaces for chief and petty officers and men. An unusual feature of the ship is the number of winches

on deck, a total of 23 of the electro-hydraulic type. These are used for ship-to-ship movement of cargo and supplies, as well as shore-to-ship requirements when alongside.

New Construction

Two new operational support ships are planned under the Five Year Programme. They will be improved versions of H.M.C.S. *Provider*. These ships, one of which is intended for each coast, will increase several times over the capability of the Navy's anti-submarine forces to remain continuously on station in an emergency. As such, they will materially increase the cost-effectiveness of the R.C.N. ASW fleet.

Alternatively, the operational support ships may be used to carry vehicles and their crews as well as bulk equipment, should they be needed for sealift purposes. Together with the existing capacity of the aircraft carrier *Bonaventure* and the *Provider* there will thus be a very useful sealift capability in the fleet.

ESCORT MAINTENANCE SHIPS (ARE)



CAPE SCOTT

1960, Royal Canadian Navy, Official

2 "Cape" Class

CAPE BRETON (ex-Flamborough Head)

CAPE SCOTT (ex-Beachy Head, ex-Vulkaan, ex-Beachy Head)

Name:	Cape Breton	Cape Scott
Pennant No.:	ARE 100	ARE 101
Builders:	Burrard Dry Dock Co., Vancouver, B.C.	Burrard Dry Dock Co., Vancouver, B.C.
Laid down:	5 July 1944	8 June 1944
Launched:	7 Oct. 1944	27 Sep. 1944
Completed:	25 Apr. 1945	20 Mar. 1945
Accepted:	2 May 1945	27 Mar. 1945
Displacement:	8,580 tons standard (11,270 tons full load)	
Dimensions:	441½ × 57 × 20 (mean at standard displacement) feet	
Machinery:	Triple expansion, 1 shaft, I.H.P.: 2,500=11 kts.	
Boilers:	2 Foster Wheeler	
Complement:	Cape Breton 220, Cape Scott 270 officers and men	

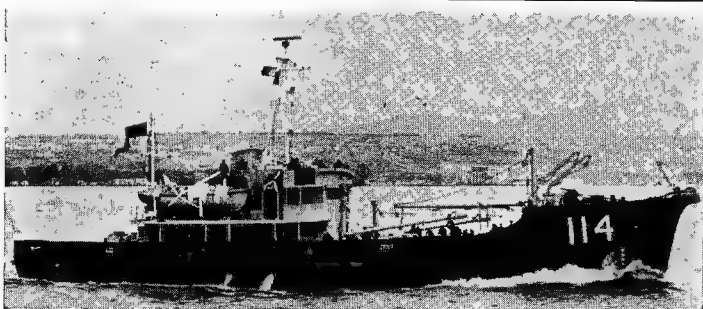
General

Cape Breton formerly served in the Royal Navy as the escort maintenance ship *Flamborough Head*; but she returned from the United Kingdom in 1951 and was in turn acquired by the Royal Canadian Navy and renamed *Cape Breton* in 1953, serving as a training establishment for technical apprentices at Halifax until 1958 when she sailed for Esquimalt for conversion to her present function. On 16 Nov. 1959 she was commissioned on the West Coast as the second mobile repair ship; but she was paid off to reserve on 10 Feb. 1964.

Cape Scott served in the Royal Navy as the *Beachy Head* until 1947, when she was lent to Royal Netherlands Navy and renamed *Vulkaan*; but she was returned to the Royal Navy in 1950, and was acquired by the Royal Canadian Navy in 1952, being renamed *Cape Scott* in 1953. On 28 Jan. 1959 *Cape Scott* was commissioned at Halifax as the Royal Canadian Navy's first mobile repair ship.

Both ships are equipped with a helicopter landing platform, a decompression chamber for the ship's divers, engineering, electrical and electronic repair shops, diesel engine repair shop, battery shop, sheet metal shop, welding shop, pipe and coppersmith's shop, plate shop and blacksmith's shop. Each ship contains an eight-berth hospital, large sick bay, operating theatre, X-ray room, small medical laboratory, dental clinic and dental laboratory.

RESEARCH VESSELS (AGOR)



BLUETHROAT

Royal Canadian Navy, Official

1 Former Controlled Minelayer

BLUETHROAT (AGOR 114)

Displacement:	785 tons standard (870 tons full load)
Dimensions:	150½ (pp.), 157 (o.a.) × 33 × 10 feet
Machinery:	Diesel, 2 shafts, B.H.P.: 1,200=13 kts.

General

Authorized under the 1951 Programme. Built by Geo. T. Davie & Sons Ltd., Lauzon P.Q. Laid down on 31 Oct. 1952. Launched on 15 Sep. 1955. Completed on 28 Nov. 1955. Built as a Mine and Loop Layer, but under NATO standardised nomenclature listed as a Harbour Mineplanter. In 1957 she was rated as a Controlled Minelayer, No. NPC 114. Redesignated as a Cable Layer (ALC) in 1959, and as a Research Vessel (AGOR) in 1964.



SACKVILLE

1963, Royal Canadian Navy, Official

1 Former "Flower" Class Corvette

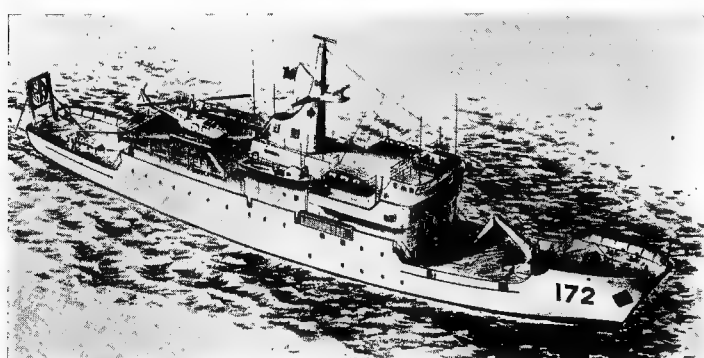
SACKVILLE (AGOR 113)

Displacement:	1,085 tons standard (1,350 tons full load)
Dimensions:	190 (pp.), 205 (o.a.) × 33 × 14½ feet
Machinery:	Triple expansion, I.H.P.: 2,750=16 kts.
Boilers:	2 S.E.

General

Built by St. John Dry Dock Co., St. John, N.B. Launched on 15 May 1941. Completed on 30 Dec. 1941. Ex-"Flower" class frigate (corvette) converted to loop layer. Employed by Naval Research Laboratories for oceanographic work. Formerly designated AN-113, but rated as ALC in 1959, as a cable layer under NATO nomenclature. Redesignated as a Research Vessel (AGOR) in 1964.

OCEANOGRAPHIC RESEARCH VESSELS (AGOR)



AGOR 172

1964, Royal Canadian Navy, Official

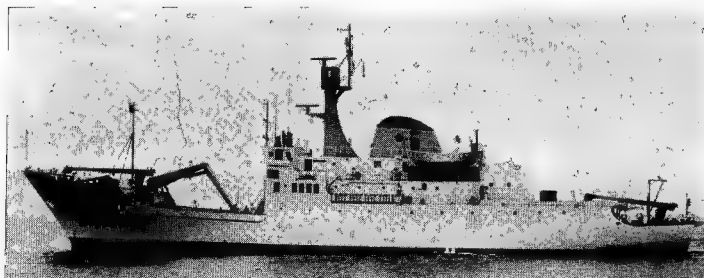
1 Projected

AGOR 172

Displacement:	2,000 tons (official figures)
Dimensions:	252 (o.a.) feet
Aircraft:	Light helicopter
Machinery:	Diesel electric, 2 shafts, S.H.P.: 3,000=16 kts. (max.)
Radius:	8,000 miles at 12 kts.
Complement:	50

General

To be constructed for the Naval Research Establishment of the Defence Research Board and based at Halifax. Intended for acoustic hydrographic and general oceanographic work, in particular as related to anti-submarine warfare. Will be capable of operating in heavy ice in the company of an icebreaker. Design is slightly enlarged version of *Endeavour* (see below) with similar main engines, speed and range.



ENDEAVOUR

1965, Royal Canadian Navy, Official

1 New Construction A/S Type

ENDEAVOUR (AGOR 171)

Displacement:	1,560 tons (revised official figures)
Dimensions:	215 (w.f.), 236 (o.a.) × 38½ × 13 feet
Aircraft:	1 light helicopter
Machinery:	Diesel electric, 2 shafts, S.H.P.: 2,960=16 kts.
Radius:	10,000 miles range at 12 kts.
Complement:	10 officers, 13 scientists, 25 ratings (plus helicopter pilot and engineer)

General

A new research ship specifically designed to meet the scientific requirements for undertaking programmes in anti-submarine research. Carries a light helicopter in a telescopic hangar. Flight deck 48 by 31 feet. Stiffened for operating in ice covered areas. Designed by the Director General Ships and the Pacific Naval Laboratory. Built by Yarrows Ltd., Esquimalt, B.C. Contract let in Nov. 1963. Accepted for service on 9 Mar. 1965. She is able to turn in 2½ times her own length. Her crownstern is fitted with engine and steering controls for navigation in ice. A bulbous bow reduces pitch and she has anti-roll tanks. A large articulated five-ton crane is fitted forward so that the jib head can be lowered to the ocean surface and thus reduce swing on scientific instruments. Two additional 9-ton Austin-Weston telescopic cranes are fitted. There are two oceanographical winches each holding 5,000 fathoms of 5/16 inch wire, two bathythermograph winches and a deep-sea anchoring and coring winch. She has acoustic insulation in her machinery spaces.



FORT FRANCES

1964, Royal Canadian Navy, Official

2 Former "Algerine" Class Ocean Minesweepers

FORT FRANCES (AGOR 170)

NEW LISKEARD (AGOR 168)

Displacement:	1,040 tons standard (1,335 tons full load)
Dimensions:	225 (o.a.) × 35 × 11 (max.) feet
Machinery:	Triple expansion, 2 shafts, I.H.P.: 2,000=16.5 kts.
Boilers:	2, of 3-drum type
Complement:	85

General

Built by Port Arthur Shipbuilding Co., Port Arthur, Ontario. *Fort Frances* was launched on 30 Oct. 1943, *New Liskeard* on 14 Jan. 1944. Formerly rated as Ocean Minesweepers (AM), but redesignated Coastal Escorts (FSE) in 1933, refitted as survey vessels and redesignated AGH in 1959, and again redesignated AGOR in 1964.

Recent Disposals

Sister ship *Oshawa*, AGOR 174, was placed in reserve when *Endeavour* commissioned on 9 Mar. 1965.

COASTAL MINESWEEPERS (MCB)



MIRAMICHI Added 1964, Royal Canadian Navy, Official
10 "Bay" Class

Name	No.	Builders:	Laid down	Launched	Completed
CHALEUR	164	Marine Industries	20 Feb. 56	17 Nov. 56	12 Sep. 57
CHIGNECTO	160	Geo. T. Davie	25 Oct. 55	26 Feb. 57	1 Aug. 57
COWICHAN	162	Yarrows	10 July 56	26 Feb. 57	19 Dec. 57
FORTUNE	151	Victoria Machinery	24 Apr. 52	14 June 53	1 Nov. 54
FUNDY	159	Davie Shipbuilding	7 Mar. 55	14 June 56	27 Nov. 56
JAMES BAY	152	Yarrows	16 Aug. 51	12 Mar. 53	28 Apr. 54
MIRAMICHI	163	Victoria Machinery	2 Feb. 56	22 Feb. 57	28 Oct. 57
QUINTE	149	Port Arthur	2 May 52	20 June 53	15 Oct. 54
RESOLUTE	154	Kingston Shipyard	29 Aug. 51	20 June 53	16 Sep. 54
THUNDER	161	Port Arthur	1 Sep. 55	27 Oct. 56	3 Oct. 57

Displacement: 390 tons standard (412 tons full load)
Dimensions: 140 (pp.), 152 (o.a.) x 28 x 7 (aft) feet
Guns: 1—40 mm.
Machinery: 2 General Motors V-12 Diesels, 2 shafts.
B.H.P.: 2,400=16 kts.
Oil fuel: 52 tons
Radius: 4,500 miles at 11 kts.
Complement: 3 officers, 35 ratings

General
Extensively built of aluminium, including frames and decks. Four of the original 14 vessels of this class were ordered under the 1950 Programme and ten under the 1951 Programme. Named after Canadian straits and bays. Designation changed from AMC to MCB in 1954. Under the current cutback programme all ten were paid off to reserve between 28 Feb. and 20 Mar. 1964.

Transfers
Chaleur (144), Chignecto (156), Cowichan (147), Fundy (145), Miramichi (150), and Thunder (153), of this class were transferred to the French Navy in 1954; but six more of the same class with the same names were built for the Royal Canadian Navy to replace those transferred.

Comax (146), Gaspe (143), Trinity (157), and Ungava (148), of this class were transferred to the Turkish Navy under Mutual Aid arrangements in 1958.

Recent Disposals
The coastal minesweeper Cardova, of the YMS type, latterly rated as a support ship, was declared surplus in 1963.

DIVING DEPOT SHIPS (YMT), ex-Coastal Escort



GRANBY Added 1959, Royal Canadian Navy, Official
Former "Bangor" Class Fleet Minesweeper

GRANBY (YMT 180)	590 tons standard (790 tons full load)
Displacement:	162 x 28 x 8½ feet
Dimensions:	Diesel, 2 shafts. B.H.P.: 2,000=16 kts.
Machinery:	Complement: 60

General
Launched on 9 June 1941. Former Fleet Minesweeper (AM) of the Diesel "Bangor" class, redesignated Coastal Escort (FSE) in 1953, and Clearance Diving Depot Ship (YMT) in 1959, after having been employed as a submarine Rescue Vessel.

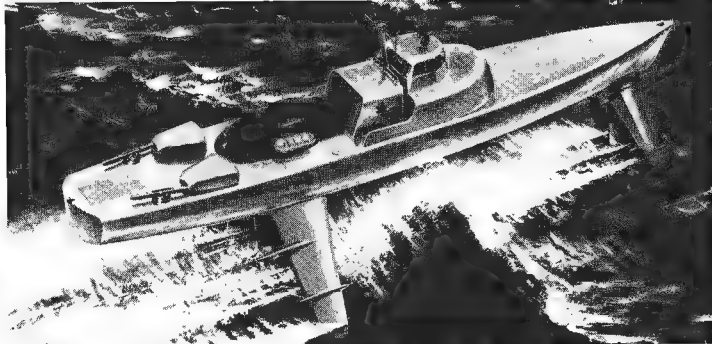
DIVING TENDERS (YMT)

YMT 11	YMT 12
Displacement:	110 tons
Dimensions:	88 x 20 x 4½ (mean) feet
Machinery:	General Motors diesel. B.H.P.: 228=10.75 kts.

General
YMT 11 was completed in Jan. 1962 and YMT 12 on 7 Aug. 1963, both by Ferguson Industries Ltd., Picton, Nova Scotia. They can dive four men at a time to a depth of 250 feet and are fitted with a recompression chamber. A photograph of YMT 11 appears in the 1962-63 edition.

There are also the small diving tenders YMT 6, YMT 8, YMT 9 and YMT 10, 70 tons, 75x18½x8½ feet, 2 diesels. B.H.P.: 165. YMT 1 (46 ft.) was transferred to the Naval Research Establishment as a yard craft. YMT 3 and YMT 5 were declared surplus and sold in 1963. YMT 2 and YMT 7 are 46-ft., wooden hulled single screw vessels. Replacement by YMT 13 (YMT 11 class) is anticipated.

ANTI-SUBMARINE HYDROFOIL (FHE)



FHE 400 1964, Royal Canadian Navy, Official
1 New Construction

FHE 400	180 tons
Displacement:	151½ (o.a.) x 21½ x 15 (hull depth), 23 (hull-borne draught), 7½ (60 kts. draught). Foil base 90 feet
Dimensions:	Pratt & Whitney FT4A—2 gas turbine when foil-borne, S.H.P.: 22,000=50 to 60 kts.
Machinery:	Davey-Paxman diesel when hull-borne, S.H.P.: 2,000=12 to 15 kts.
	P. & W. ST—6 gas turbine for hull-borne boost and foil-borne auxiliary power, S.H.P.: 390

General
It is officially stated that approval has been given and funds have been provided for de Havilland Aircraft of Canada Ltd., Toronto, to design a prototype all-weather, ocean-going hydrofoil craft for the Royal Canadian Navy. Completion is expected by early 1966. Designated FHE for Fast Hydrofoil Escort. The supercavitating bow foil has a 22½ ft. span and the delayed cavitation main-foil has a 65 ft. span. Marine Industries Ltd., Sorel, Que. will be the sub-contractor for the assembly and outfitting of the vessel, which will be of welded all-aluminium construction.

PATROL CRAFT (PCS)



CORMORANT 1964, Royal Canadian Navy, Official
3 "Bird" Class Small Submarine Chasers

CORMORANT (PCS 781)	LOON (PCS 780)	MALLARD (PCS 783)
Displacement:	66 tons full load	
Dimensions:	92 x 17 x 5½ feet	
Guns:	1—20 mm. Oerlikon AA.	
A/S weapons:	Hedgehog and depth charges	
Machinery:	2 diesels. B.H.P.: 1,200=14 kts.	
Complement:	21	

General
Loon, first of the class, was commissioned on 14 Dec. 1955. Designed for harbour patrol work and training duties. Primarily of wood and aluminium construction. Fitted with sonar and anti-submarine apparatus and carry modern navigational equipment. Officially rated as Patrol Craft Submarine Chasers Small. All three were paid off to reserve on 23 May 1963. A photograph of Loon appears in the 1956-57 to 1963-64 editions. The fourth boat of this class, Blue Heron, was transferred on loan to the Marine Section of the Royal Canadian Mounted Police in 1956. (There are also YFP 312 and YFP 320, 60 ft. patrol craft.)

AUXILIARY RESEARCH VESSEL

1 "Ore" Class

LAYMORE AGOR 516	560 tons gross, 262 tons net
Measurement:	176½ x 32 x 8 feet
Dimensions:	General Motors diesel. B.H.P.: 1,000=10.8 kts.
Machinery:	

General
Formerly a small supply vessel for coastal services, classed as a fleet auxiliary and designated AKS. Converted into a research vessel in mid-1965 and assigned the designator AGOR. Her original sister ship Eastore was sold on 30 July 1964. The survey ship Whitethroat, AGH 113, formerly a minelaying trawler, which was to have been disposed of (taken out of service on 31 Mar. 1964), was retained in service until the work on Laymore was completed (see photograph and full particulars of Whitethroat in the 1963-64 edition).

SUPPLY VESSELS (AKS)

SCATARI (ex-Malahat)	233 tons
Measurement:	97 x 20 x 9 feet
Dimensions:	Diesel, 1 shaft. B.H.P.: 400
Machinery:	

General
Ex-R.C.A.F. supply ship. AKS 514. Commissioned during summer months as training vessel for R.C.N.R. personnel on Great Lakes. There is also LANGARA AKS 513.

GATE VESSELS (YMG)



PORTE ST. JEAN

1962, Royal Canadian Navy, Official

5 "Porte" Class

Name	No.	Builders	Laid down	Launched	Completed
PORTE DAUPHINE	186	Pictou Foundry	16 May 51	24 Apr. 52	10 Dec. 52
PORTE DE LA REINE	184	Victoria Machinery	4 Mar. 51	28 Dec. 51	19 Sep. 52
PORTE QUEBEC	185	Burrard Dry Dock	15 Feb. 51	28 Aug. 51	7 Oct. 52
PORTE ST. JEAN	180	Geo. T. Davie	16 May 50	21 Nov. 50	4 June 52
PORTE ST. LOUIS	183	Geo. T. Davie	21 Mar. 51	22 July 52	28 Aug. 52

Displacement: 429 tons full load

Dimensions: 125½ × 26½ × 13 feet

Guns: 1—40 mm. AA.

Machinery: Diesel, A/C Electric, 1 shaft. B.H.P.: 600=11 kts.

Complement: 3 officers, 20 ratings

General

Of trawler design. Multi-purpose vessels used for operating the gates in the A/S booms, fleet auxiliaries, anti-submarine netlayers for entrances to defended harbours. Capable of being fitted for minesweeping. Designation changed from YNG to YMG in 1954. *Porte Dauphine* is on loan to the Department of Transport.

OILERS (AO)

2 "Dun" Class

DUNDALK	DUNDURN
Displacement: 950 tons	
Dimensions: 178½ × 32½ × 13 feet	
Machinery: Diesel. B.H.P.: 700=10 kts.	

General

Small vessels designated tankers, and classed as fleet auxiliaries. A photograph of *Dundalk* appears in the 1949-50 to 1959-60 editions.

TUGS

3 "Saint" Class

Name	No.	Laid down	Launched	Completed
SAINT ANTHONY	ATA 531	15 July 1954	2 Nov. 1955	22 Feb. 1957
SAINT CHARLES	ATA 533	28 Apr. 1954	10 July 1956	7 June 1957
SAINT JOHN	ATA 535	1 Dec. 1953	14 May 1956	23 Nov. 1956

Displacement: 840 tons full load

Dimensions: 151½ × 33 × 17 feet

Guns: 2—40 mm. Bofors AA.

Machinery: Diesel, 1 shaft. B.H.P.: 1,920=14 kts.

General

Ocean tugs. Authorised under the 1951 Programme. All built by the St. John Dry Dock Co. A photograph of *Saint John* appears in the 1957-58, 1958-59 and 1959-60 editions. *St. Charles* is being paid off to reserve.

3 "Ton" Class

CLIFTON	HEATHERTON	RIVERTON
Displacement: 462 tons		
Dimensions: 104 (pp.), 111½ (o.a.) × 28 × 11 feet		
Machinery: Dominion Sulzer diesel. B.H.P.: 1,000=11 kts.		
Complement: 17		

General

Ocean tugs. *Clifton* was launched on 31 July 1944. Hull numbers are ATA 529, ATA 527 and ATA 528, respectively. A photograph of *Heatherton* appears in the 1952-53 to 1959-60 editions.

5 "Glen" Class

GLENBROOK	GLENDYNE	GLENEVIS	GLENLIVIT II	GLENSIDE
Dimensions: 80 × 20½ × 7½ (aft full load) feet				
Machinery: Diesel. B.H.P.: 300=9 kts.				

General

Big harbour tugs. *Glenlivit II* is loaned to Halifax Department of Public Works. Hull numbers are YTB 501, 503, 502, 504 and 500, respectively. Sister tugs *Glen-devon*, Y 505, and *Glen-don*, Y 506 were taken out of service on 31 Mar. 1964 and sold to commercial interests.

4 "Wood" Class

EASTWOOD	GREENWOOD	LAKEWOOD	OAKWOOD
Dimensions: 60 (o.a.) × 15½ × 5 (aft full load) feet			
Machinery: H.P.: 250=10 kts.			

General

Medium harbour tugs. Used as A/S Target Towing Vessels. Launched, 1944. *Oakwood* loaned to Esquimalt Department of Transport. Hull numbers are YTM 550, 551, 552 and 554, respectively. *Wildwood* was stricken from the Navy List in 1959.

Other medium harbour tugs are:

FT1, FT2. Employed as fire tugs. Hull numbers YTM 556, and 557, respectively. Sister fire tug FT 3, YMT 558, was taken out of service on 31 Mar. 1964 for disposal.

13 "Ville" Class

ADAMSVILLE	LISTERVILLE	MARYSVILLE	PARKSVILLE
BEAMSVILLE	LOGANVILLE	MERRICKVILLE	PLAINSVILLE
LAWRENCEVILLE	MANNVILLE	OTTERVILLE	QUEENSVILLE
			YOUSVILLE
Dimensions: 40 × 10½ × 4½ feet			
Machinery: Diesel, 1 shaft. B.H.P.: 150			

General

Small harbour tugs. Majority employed on towing duties at Esquimalt and Halifax. Hull numbers are YTS 582, 583, 584, 578, 589, 577, 585, 581, 590, 579, 587, 586 and 588, respectively. Sister tugs *Colville*, Y 576, and *Eckville*, Y 580, were taken out of service on 31 Mar. 1964 for disposal. Other small harbour tugs are: *SHOVELLER*, *VALIANT*. Nos. YTS 591 and 575.

R.C.M.P. MARINE DIVISION



WOOD

1960, Director of Marine Services, Official

I "Commissioner" Class

WOOD

Displacement: 600 tons

Dimensions: 178 (o.a.) × 29 × 9 feet

Machinery: 2 Fairbanks-Morse diesels, 2 shafts. B.H.P.: 2,660=16 kts.

Complement: 60

General

Built by Geo. T. Davie and Sons Ltd., Lauzon, Levis, Quebec. Completed in July 1958. Used for patrol duties on the east coast of Canada, this ship is built of steel with aluminium superstructure and steel strengthened for ice patrol.

Of the ex-fleet minesweepers of the Canadian diesel "Bangor" type, *French* was turned over to the Crown Assets Corporation on 2 Feb. 1961 for disposal, and *Irvine* was paid off into reserve on 15 Nov. 1960 for disposal. Sister ship *Macbrien* was deleted from the list in 1959.



FORT STEELE

1960, Director of Marine Services, Official

I "Fort" Class

FORT STEELE

Displacement: 85 tons

Dimensions: 118 (o.a.), 110 (w.l.) × 21 × 7 feet

Machinery: Two 18-cyl. Napier Deltic engines, 2 shafts, 2 Kamewa variable pitch propellers. B.H.P.: 5,000=over 20 kts.

Complement: 16

General

Built by Canadian Shipbuilding & Engineering Ltd. Completed in Nov. 1958. Used as a high speed patrol craft on the east coast, this vessel is built of steel with aluminium superstructure, and has twin rudders.

The four old boats of the "Fort" class (Fairmile, "B" type motor launches) were stricken from the list in 1959.

2 "Bird" Class (Patrol Craft, PCS Type)

BLUE HERON

Displacement: 66 tons full load

Dimensions: 92 × 17 × 5½ feet

Machinery: 2 diesels. B.H.P.: 1,200=14 kts.

Complement: 20

General

Blue Heron was built for the Royal Canadian Navy by Hunter Boat Works, Orillia. Launched at Barrie, Ontario, in Dec. 1955. Completed on 30 July 1956. Transferred, on loan, to the R.C.M.P. Marine Section on 19 Nov. 1956 as a sea rescue craft. Similar to *Cormorant* (see photograph on previous page).

Victoria was built for the R.C.M.P. by Yarrows Limited, Victoria. Completed in Dec. 1955. She is a steel copy of the wooden "Bird" class inshore patrol vessels, *Loon* and *Mallard*.

13 "Detachment" Class (Coastal) Patrol Boats

ACADIAN

ALERT

CAPTOR

INTERCEPTOR

TAHSIS

ADVERSUS

BURIN

DETECTOR

MASSET

TOFINO

GANGES

NANAIMO

WESTVIEW

Displacement: 48 tons

Dimensions: 65 × 15 × 4 feet

Machinery: 1 Cummins diesel, 1 shaft. B.H.P.: 410=12 kts.

General

Coastal patrol police boats built for service on the east and west coasts.

LITTLE BOW II

Displacement: 27 tons

Dimensions: 55 × 14 × 4 feet

Machinery: 2 General Motors turbojet engines. B.H.P.: 600=16 kts.

General

These turbojet craft were built as an experiment and no additions are contemplated.

6 "Detachment" Class (Great Lakes)

CARNDUFF II

CHILCOOT II

CUTKNIFE II

MOOSOMIN II

SHAUNAVON II

TAGISH II

Dimensions: 50 × 15 × 3 feet

Machinery: 2 gasoline engines. B.H.P.: 750=over 20 kts.

General

A new class of small, fast patrol craft built for service on the Great Lakes.

There are also ten motor boats named *Advance*, *Beaver*, *Fort Erie*, *Fort Francis II*, *Fort St. James*, *Fraser*, *Kenora III*, *Port Alice*, *Sorel* and *Valleyfield*, ranging from 26 to 36 feet in length with petrol motors, speeds up to 27 knots. Six are on the Great Lakes and the others on the West Coast.

CANADIAN COAST GUARD

(Formerly THE CANADIAN MARINE SERVICE)

operated by The Department of Transport, Canada

Minister of Transport:

Hon. J. W. Pickersgill, P.C., M.P., M.A., B.Litt.

Deputy Minister of Transport:

Mr. John R. Baldwin, M.A., B.Litt.

Assistant Deputy Minister, Marine:

Dr. Gordon W. Stead, D.S.C., B. Comm., B.A., LL.D., C.I.A.Mr.E.

Director Marine Operations:

Rear Admiral Anthony H. G. Storrs, D.S.C., C.D., R.C.N. (Ret'd).

Director, Shipbuilding:

Mr. J. Rankine Strang, M.R.I.N.A., M.S.N.A. & M.E., M.A.S.N.E.

The Canadian Coast Guard, formerly the Canadian Marine Service, is the sea-going component of the Department of Transport. It was formed with Confederation in 1867 from previously existing organizations. Until the Royal Canadian Navy grew out of it immediately before the First World War, it was an armed Service. Further re-organizations have occurred since and the old name was resumed in 1960.

On 26 January 1962, the new name "Canadian Coast Guard" was adopted in recognition of the tremendous expansion the fleet had undergone in the previous several years, in scope of operations, in number of vessels, and in standards of operation.

Throughout its history, the Canadian Coast Guard has supplied and maintained aids to navigation for the Department on the Atlantic and Pacific Coasts, in Hudson Bay and Strait, the Western Arctic, the Great Lakes, St. Lawrence River system, and the Mackenzie River.

The Department has long operated icebreakers for flood prevention in the St. Lawrence, extension of the coastal navigation season, and patrol of the Hudson Bay route to Churchill. In recent years the demand for assistance in Arctic and winter navigation has grown enormously and the number of icebreakers included in the fleet has increased correspondingly.

The Canadian Coast Guard now has a total of 191 vessels of all types, including some 50 ships of larger size, from about 400 tons gross to more than 6,000 tons gross. These include 10 fully strengthened icebreakers and eight lighter supply and buoy vessels capable of icebreaking.

In addition there are eight other vessels designed for special service in the Arctic. 11 lighthouse supply and buoy ships, weatherships, lightships, a Great Lakes research vessel, shallow draft ships for the Mackenzie River, St. Lawrence Ship Channel survey vessels, shore-based lifeboats and more than 130 steel landing craft for various types of Arctic use.

Since 1954 the Department has assumed increasing responsibility for the re-supply of numerous and widely scattered military and civil Arctic installations until by 1961 its operations covered the whole Canadian North. In the Eastern Arctic, the supply function is carried out by convoys of chartered merchant ships escorted by icebreakers. The icebreaker masters act as convoy commodores and are assisted by northern supply vessels. Ice reconnaissance is provided by fixed wing aircraft under the direction of the Meteorological Branch of the Department with close reconnaissance being flown by helicopters carried in the icebreakers and assisted by ice observers of the Meteorological Branch. Ship-shore handling of supplies is carried out by a fleet of landing craft maintained in the North and operated by the Canadian Coast Guard. In the Western Arctic, an icebreaker of the Department covers supply convoys. Total Arctic re-supply involves handling some 100,000 tons of cargo annually.

Commercial winter navigation in the Gulf of St. Lawrence is supported by icebreakers based on the Atlantic Coast area and directed from an operations room in Sydney, Nova Scotia. Ice information is provided by the Meteorological Branch as in the case of the Arctic operation.

In the Arctic and the Gulf of St. Lawrence, advantage is taken of the presence of Canadian Coast Guard vessels to afford opportunities for hydrographers, oceanographers and other scientists to extend their knowledge of the waters of Canada which can only be navigated by icebreakers. Information from these programmes is in turn used to support and develop the ability to navigate in ice congested waters. The specialists carried for these purposes are provided by other Departments of the Canadian Government. Some of this work has recently been extended into arctic areas not previously traversed by ship. On the Great Lakes one vessel, on loan from the Royal Canadian Navy, is operated on behalf of a group of research organizations in the fields of meteorology and limnology.

The Canadian Coast Guard co-ordinates the marine element in the national air sea rescue organization which is under the overall control of the Royal Canadian Air Force. This involves the provision of special vessels for search and rescue purposes. These include five 95 ft. cutters, three 70 ft. cutters and two 38 ft. cutters. Two of the largest types serve on the Pacific Coast, two on the Atlantic Coast, and one on the Great Lakes in Summer and the East Coast in Winter. The three 70 ft. vessels are used on the Great Lakes. The smallest type are stationed on the West Coast.

Weather Station "Papa" in the mid-Pacific Ocean is maintained by ships of the Canadian Coast Guard, the specialist staff being supplied by the Meteorological Branch of the Department. Oceanographic work is also carried out from these ships. Two new weatherships to replace the present frigates on loan from the Royal Canadian Navy are to be built for this service.

The Department of Transport is responsible for the maintenance and improvement of the St. Lawrence Ship Channel from Montreal to the sea. Vessels of the Canadian Coast Guard carry out the necessary surveys.

NEW CONSTRUCTION

FULL ICEBREAKERS

The construction of a new icebreaker for service in the Arctic and the Gulf of St. Lawrence is under way at Canadian Vickers Limited, Montreal. She will be larger than any of the present Coast Guard icebreakers, with a full load displacement of 13,300 tons, an overall length of 366½ ft., breadth of 80 ft., depth of 43 ft. and a maximum draught of 31 ft. She will have turbo-electric propelling machinery developing 24,000 shaft horse power and will be triple screwed. She will carry two helicopters, with flight deck, hangar below decks and elevator. She is expected to cost \$18,719,075.

Tenders have been called for the construction of a new icebreaker for use in the Gulf of St. Lawrence. She will have a full load displacement of 6,320 tons with an overall length of 295 ft., a breadth of 62½ ft. and a load draught of 20 ft. Propulsion will comprise four diesels and two gas turbines powering two electric motors of 12,000 shaft horse power to twin screws and giving a speed of 15 knots. She will carry two landing craft, and a helicopter operated from a flight deck and retractable hangar.

WEATHER SHIPS

Construction of two turbo-electric twin screw weather and oceanographic vessels for Pacific Ocean service is now under way at Burrard Drydock Limited, North Vancouver, B.C. They will replace the existing Coast Guard weather ships which man Ocean Station "Papa" 900 miles west of the British Columbia coast. The new ships will be of 5,340 tons loaded displacement, with a top speed of 18 knots. They will be 404½ ft. long, with a 50 ft. beam and a load draught of 17 ft. Their range at 14 knots will be 8,400 nautical miles. They will have bow water jet reaction system to assist steering at slow speeds. Flume stabilization systems will be fitted. They will be turbo-electric powered, with oil-fired boilers to provide the quiet operation needed for vessels housing much scientific equipment. Their complement will be about 96, including 15 technical officers such as meteorologists, oceanographers and electronics technicians.

OTHER VESSELS

In addition to those already mentioned, the following ships are in the planning stages or under construction:—five icebreaking supply and buoy vessels and four agency tenders. Several of the vessels projected will be replacements for ageing ships.

SUMMARY

Full icebreakers ...	10
Light Icebreaker Buoy Vessels ...	8
Special Arctic Service Vessel ...	1
Lighthouse Supply and Buoy Vessels ...	11
Northern Supply Vessels ...	6
Northern Service Depot Ship ...	1
St. Lawrence Ship Channel Work ...	5
Weather Ships ...	3
Great Lakes Marine and Meteorology Research ...	1
Search and Rescue Cutters, 95 feet ...	5
Search and Rescue Cutters, 70 feet ...	3
Search and Rescue Cutters, 38 feet ...	2
Mackenzie River Shallow Draft Buoy Vessels ...	4
Steel Landing Craft ...	114
Lightships ...	3
Marine Agency Tenders ...	11
Shore Based Lifeboats ...	3
Total, Canadian Coast Guard Vessels ...	191

Other vessels operated by the Department of Transport

Pilotage ...	14
Canals Work ...	37
	51

Total vessels operated by the Department of Transport including Canadian Coast Guard, Pilotage and Canals ... 242

CABLE REPAIR SHIP

I New Construction

Displacement:	6,375 tons full load
Dimensions:	313½×60×34½×21½ feet
Machinery:	Diesel-electric, 2 shafts. S.H.P.: 9,000
Radius:	10,000 miles at 12 kts.
Complement:	100 officers and men

General

Combination cable repair ship and icebreaker. Built by Canadian Vickers Limited, Montreal, for delivery in June 1965. Designed to repair and lay cable over the bow only. For use in East Coast and Arctic waters. Bow water jet reaction manoeuvring system, heeling tanks and Flume stabilisation system. Three circular storage holds handle a total of 400 miles of submarine cable. Personnel include technicians and helicopter pilots, the ship being designed for use with that type of aircraft.

WEATHER SHIPS



ST. CATHERINES (in C.G.) 1963, Canadian Coast Guard, Official



STONETOWN (when in R.C.N.) Royal Canadian Navy, Official

3 Former "River" Class Frigates

Name	Builders	Launched
ST. CATHERINES	Yarrows Limited, Esquimalt, B.C.	6 Dec. 1942
STONETOWN	Canadian Vickers Limited, Montreal	28 Mar. 1944
ST. STEPHEN	Yarrows Limited, Esquimalt, B.C.	6 Feb. 1944
Displacement:	1,490 tons standard (2,216 tons full load)	
Measurement:	1,895 tons gross	
Dimensions:	283 (pp.), 301½ (o.a.) × 36½ × 17½ × 13½ feet	
Machinery:	Triple expansion, 2 shafts. I.H.P.: 3,700=14 kts. (max.)	
Boilers:	2 Admiralty 3-drum type	
Oil fuel:	640 tons	
Radius:	9,500 miles at 12 kts.	

General
Former frigates of the Royal Canadian Navy acquired by the Department of Transport and converted to weather ships in 1950. Armament removed.

New Construction
Two new weather oceanographic ships are being built (see full details on page 41).

NORTHERN SUPPLY VESSELS



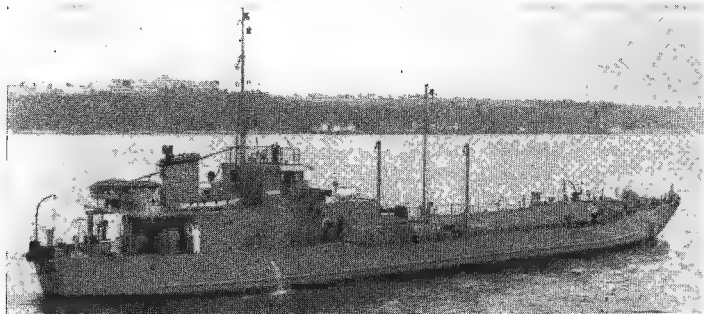
GANNET 1965, Canadian Coast Guard, Official

7 Former Tank Landing Craft (LCT 8s)

AUK	EIDER	GANNET	PUFFIN	RAVEN	SKUA
Measurement:	1,083 tons to 1,104 tons gross				
Dimensions:	225 (pp.), 231½ (o.a.) × 38 × 14 × 3 feet				
Machinery:	Diesel. S.H.P.: 1,000=9 kts. (max.)				

Construction
Converted LCT (8)s, acquired from Great Britain in 1957-61. Built by Harland & Wolff, Belfast (Puffin and Raven), Sir Wm. Arrol & Co. Ltd., Glasgow (Elder and Gannet) and Alexander Findley, Dumbarton (Auk). All completed in 1946. A photograph of Skua appears in the 1962-63 to 1964-65 editions.

Sister ship Nanook, officially rated as a Northern Service Depot Ship, is in reserve.



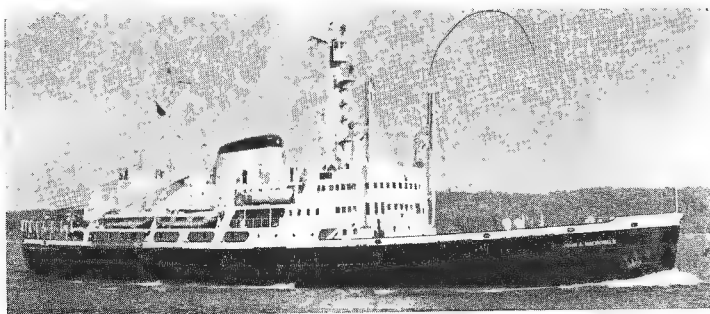
MINK 1963, Canadian Coast Guard, Official

2 Former Tank Landing Craft (LCT 4s)

MARMOT	MINK
Displacement:	586 tons loaded
Measurement:	187½ × 33½ × 4 feet
Machinery:	Diesel. S.H.P.: 920=8 kts. (max.)

Construction
Converted LCT(4)s acquired from Great Britain in 1958. Completed in 1944. Officially rated as Steel Landing Craft for Northern Service.

FULL ICEBREAKERS



JOHN A. MACDONALD 1962, Canadian Coast Guard, Official

JOHN A. MACDONALD

Displacement:	9,160 tons full load
Measurement:	6,186 tons gross
Dimensions:	315 × 70 × 33 × 28 feet
Machinery:	Diesel-electric S.H.P.: 15,000=15.5 kts. (designed)

Construction
Completed by Davie Shipbuilding Limited, Lauzon, Port Quebec, in Sep. 1960.

New Construction
Two new full icebreakers and an icebreaking cable repair ship are being built (see full details on page 41).



WOLFE 1963, Canadian Coast Guard, Official

WOLFE

Displacement:	3,005 tons full load
Measurement:	2,022 tons gross
Dimensions:	220 × 48 × 21 × 16 feet
Machinery:	Steam reciprocating. I.H.P.: 4,000=13 kts. (designed)

Construction
Built by Canadian Vickers Limited, Montreal. Completed in Nov. 1959.



CAMSELL 1963, Canadian Coast Guard, Official

CAMSELL

Displacement:	3,072 tons full load
Measurement:	2,020 tons gross
Dimensions:	223½ × 48 × 21 × 16 feet
Machinery:	Diesel-electric. S.H.P.: 4,250=13 kts. (designed)

Construction
Completed by Burrard Dry Dock Company Limited, Vancouver, B.C. in Oct. 1959.



SIR HUMPHREY GILBERT 1963, Canadian Coast Guard, Official

SIR HUMPHREY GILBERT

Displacement:	3,000 tons full load
Measurement:	1,930 tons gross
Dimensions:	220 × 48 × 21 × 16½ feet
Machinery:	Diesel-electric. S.H.P.: 4,250=13 kts. (designed)

Construction
Completed by Davie Shipbuilding Limited, Lauzon, Port Quebec, in June 1959.

Full Icebreaker—continued



LABRADOR

1965, Canadian Coast Guard, Official



LABRADOR (when in R.C.N.)

Royal Canadian Navy, Official

Ex-R.C.N. Arctic Patrol Vessel

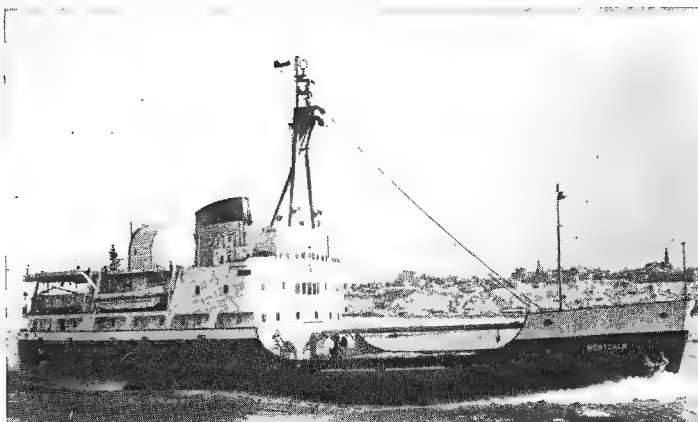
LABRADOR

Builders: Marine Industries Limited, Sorel, Quebec
Ordered: Feb. 1949
Laid down: 18 Nov. 1949
Launched: 14 Dec. 1951
Completed: 8 July 1954 (for Royal Canadian Navy)
Transferred: Feb. 1958 (to Department of Transport)

Displacement: 6,490 tons full load
Measurement: 3,823 tons gross
Dimensions: 269 (p.p.), 290 (o.a.) \times 63½ \times 37½ \times 29 feet
Guns: Mounting for 2—40 mm. forward (guns removed)
Aircraft: Provision for 2 helicopters
Machinery: Diesel-electric S.H.P.: 10,000=16 kts. (designed)
Complement: 218 (naval crew)

General

Now rated as a full icebreaker. When commissioned in the Royal Canadian Navy she was rated as an Arctic Patrol Vessel, Helicopter Carrier and Icebreaker. Her original designation was AGB, changed to AW. No. 50 in 1954. She was the first naval vessel to sail through the North West Passage and to circumnavigate North America, when she was Canada's largest and most modern icebreaker. She has high-tensile steel sides 1½ inches thick, and heeling tanks built into her. Another new feature was an aircraft hangar and a flight deck built aft which accommodated and provided a platform for helicopters to operate. The ship also carried two landing craft strengthened to resist ice formation. In addition to the latest navigational devices she is equipped with instruments for hydrography, oceanography, meteorology, cosmic ray research, ice reconnaissance and other scientific purposes. She is fitted with Denny Brown stabilisers, and her propelling machinery can be controlled from the bridge. She was transferred, on loan, to the Department of Transport and subsequently acquired from the Royal Canadian Navy outright.



MONTCALM

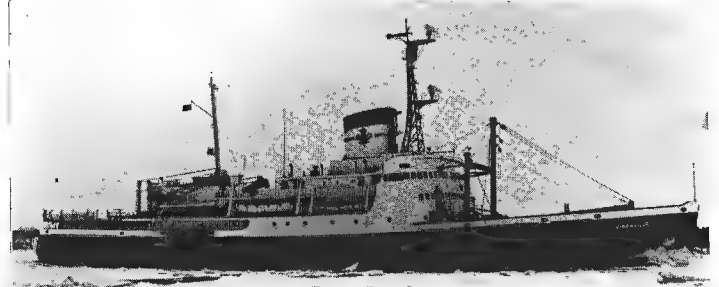
1962, Canadian Coast Guard, Official

MONTCALM

Displacement: 3,005 tons full load
Measurement: 2,017 tons gross
Dimensions: 220 \times 48 \times 21 \times 16½ feet
Machinery: Steam reciprocating. I.H.P.: 4,000=13 kts. (designed)

Construction
 Completed by Davie Shipbuilding Limited, Lauzon, Port Quebec, in June 1957.

Full Icebreaker—continued



d'IBERVILLE

1964, Royal Canadian Navy, Official

d'IBERVILLE

Displacement: 9,930 tons full load
Measurement: 5,678 tons gross
Dimensions: 310 \times 66½ \times 40 \times 30½ feet
Machinery: Steam reciprocating. I.H.P.: 10,800=15 kts. (designed)

Construction

Completed by Davie Shipbuilding Limited, Lauzon, Port Quebec, in May 1953.



ERNEST LAPOINTE

1963, Canadian Coast Guard, Official

ERNEST LAPOINTE

Displacement: 1,675 tons full load
Measurement: 1,179 tons gross
Dimensions: 184 \times 36 \times 17 \times 15½ feet
Machinery: Steam reciprocating. I.H.P.: 2,000=13 kts. (designed)

Construction

Completed by Davie Shipbuilding Limited, Lauzon, Port Quebec, in Feb. 1941.



N.B. McLEAN

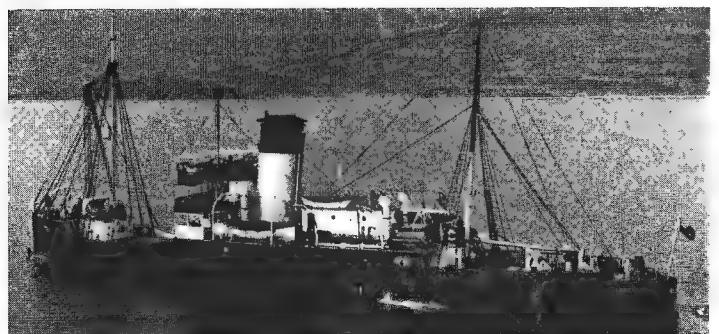
1962, Canadian Coast Guard, Official

N. B. McLEAN

Displacement: 5,034 tons full load
Measurement: 3,254 tons gross
Dimensions: 277 \times 60½ \times 31 \times 19.6
Machinery: Steam reciprocating. I.H.P.: 6,500=13 kts. (max.)

Construction

Completed by Halifax Shipyards, Limited, Halifax, N.S., in 1930.



SAUREL

1963, Canadian Coast Guard, Official

SAUREL

Displacement: 1,892 tons full load
Measurement: 1,176 tons gross
Dimensions: 212 \times 42 \times 21 \times 14½ feet
Machinery: Steam reciprocating. I.H.P.: 3,000=11 kts. (max.)

Construction

Completed by Canadian Vickers Limited, Montreal, in 1929.

SEARCH AND RESCUE CUTTERS



RELAY

1964, Canadian Coast Guard, Official

RACER	RALLY	RAPID	READY	RELAY
Measurement:	153 tons gross			
Dimensions:	95½ × 20 × 10½ × 6½ feet			
Machinery:	Diesel. B.H.P.: 2,400=20 kts. (designed)			

Construction

Built by Yarrows Ltd., Esquimalt, B.C.; Davie Shipbuilding Ltd., Lauzon, P.Q.; Ferguson Industries, Picton, N.S.; Burrard Drydock, Vancouver; and Kingston Shipyard, respectively. All completed in 1963.

SPINDRIFT	SPRAY	SPUME
Measurement:	57 tons gross	
Dimensions:	70 × 16½ × 9 × 4½ feet	
Machinery:	Diesel. B.H.P.: 1,050=19 kts. (designed)	

Construction

Built by Cliff Richardson Boats Ltd., Meaford, Ont.; J. J. Taylor & Sons, Ltd., Toronto; and Grew Ltd., Penetanguishene, Ont., respectively. Completed in 1963-64.

LIGHT ICEBREAKERS

SIMCOE	Displacement:	1,300 tons full load
	Dimensions:	179½ × 38 × 15½ × 12 feet
	Machinery:	Diesel-electric. S.H.P.: 2,000=12 kts.

Construction

Completed by Canadian Vickers in 1962. Photograph in 1963-64 edition.

SIMON FRASER	Displacement:	1,876 tons full load
	Measurement:	1,357 tons gross
	Dimensions:	204½ × 42 × 18½ × 14 feet
	Machinery:	Diesel-electric. S.H.P.: 2,900=13.5 kts. (designed)

Construction

Completed by Burrard Dry Dock Company Limited, N. Vancouver in Feb. 1960.

THOMAS CARLETON	Displacement:	1,532 tons full load
	Dimensions:	180 × 42 × 19 × 13 feet
	Machinery:	Diesel. B.H.P.: 2,000=12 kts. (designed)

Construction

Built by Saint John Dry Dock Limited, Saint John, N.B. Completed in 1960.

TUPPER	Displacement:	1,872 tons full load
	Measurement:	1,357 tons gross
	Dimensions:	204½ × 42 × 18½ × 14 feet
	Machinery:	Diesel-electric. S.H.P.: 2,900=13.5 kts. (designed)

Construction

Built by Marine Industries Limited, Sorel, Quebec. Completed in Dec. 1959.

ALEXANDER HENRY	Displacement:	2,497 tons full load
	Measurement:	1,647 tons gross
	Dimensions:	210 × 43½ × 21 × 16 feet
	Machinery:	Diesel. B.H.P.: 3,550=13 kts. (designed)

Construction

Built by Port Arthur Shipbuilding Limited, Port Arthur. Completed in July 1959.

SIR WILLIAM ALEXANDER	Displacement:	3,555 tons full load
	Measurement:	2,153 tons gross
	Dimensions:	227½ × 45 × 21½ × 17½ feet
	Machinery:	Diesel-electric. S.H.P.: 4,250=15 kts. (designed)

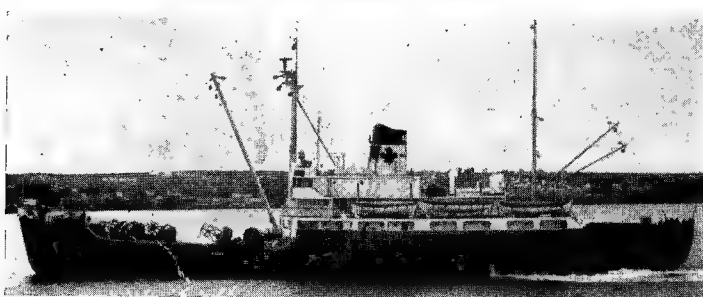
Construction

Built by Halifax Shipyards, Limited, Halifax. Completed in June 1959. Equipped with Flume Stabilisation System.

WALTER E. FOSTER	Displacement:	2,718 tons full load
	Measurement:	1,672 tons gross
	Dimensions:	229½ × 42½ × 19½ × 16 feet
	Machinery:	Steam reciprocating. I.H.P.: 2,000=12.5 kts. (designed)

Construction

Built by Canadian Vickers, Limited, Montreal. Completed in Dec. 1954.



EDWARD CORNWALLIS

1963, Canadian Coast Guard, Official

EDWARD CORNWALLIS	Displacement:	3,700 tons full load
	Measurement:	1,965 tons gross
	Dimensions:	259 × 43½ × 20½ × 18 feet
	Machinery:	Steam reciprocating. I.H.P.: 2,800=13.5 kts. (designed)

Construction

Built by Canadian Vickers, Limited, Montreal. Completed in Dec. 1949.
All the above are officially rated as Light Icebreaker, Supply and Buoy Vessels.

SPECIAL ARCTIC SERVICE VESSEL



C. D. HOWE

1962, Canadian Coast Guard, Official

C. D. HOWE	Displacement:	5,170 tons full load
	Measurement:	3,628 tons gross
	Dimensions:	276 (pp.), 295 (o.a.) × 50 × 26 × 18½ feet
	Machinery:	Steam reciprocating. I.H.P.: 4,000=13 kts. (max.)
	Radius:	10,000 miles, with 50 per cent reserve of fuel
	Capacity:	Lift of forward crane 30,000 lb.

General

Built by Davie Shipbuilding Limited, Lauzon, Quebec Harbour. Launched in Sep. 1949. Completed in June 1950. Eastern Arctic Patrol Vessel and Supply Ship. Designed as multi-purpose vessel, being icebreaker, meteorological and surveying vessel, hospital ship, and potential fleet auxiliary for naval use in war. With an icebreaker hull she was of a novel and streamlined design. She is equipped with the latest Arctic navigational apparatus, and is reinforced for limited work in ice.

SUPPLY VESSELS



MONTMORENCY

1963, Canadian Coast Guard, Official

MONTMORENCY	Displacement:	1,006 tons full load
	Dimensions:	163 × 34 × 14½ × 11 feet
	Machinery:	Diesel. B.H.P.: 1,200

Construction

Built by Davie Shipbuilding Limited, Lauzon, Port Quebec. Completed in Aug. 1957. 750 tons gross measurement.

CHESTERFIELD	Displacement:	1,627 tons full load
	Dimensions:	180 × 32 × 14½ × 12½ feet
	Machinery:	Steam reciprocating. I.H.P.: 700

Construction

Built by Collingwood Shipyards Limited. Completed in 1928. 735 tons gross.

ESTEVAN	Displacement:	2,071 tons full load
	Dimensions:	200 × 38 × 17½ × 12 feet
	Machinery:	Steam reciprocating. I.H.P.: 1,500

Construction

Built by Collingwood Shipyards Limited. Completed in 1912. 1,161 tons gross.

MONTMAGNY

General
565 tons full load, 148 × 29 × 11½ × 8 feet. Diesel. 1,000 B.H.P. Built by Russel Bros., Owen Sound, Ont. Completed in May 1963.

VERENDRYE

General
400 tons full load, 297 tons gross, 125 × 26 × 10 × 7 feet. Diesel. 760 B.H.P. Built by Geo. T. Davie & Sons, Ltd., Lauzon. Completed in Oct. 1959.

SIR JAMES DOUGLAS

General
730 tons full load, 564 tons gross, 150 × 30 × 13½ × 10½ feet. Diesel. 1,000 B.H.P. Built by Burrard Drydock, N. Vancouver, B.C. Completed in Nov. 1956.

ALEXANDER MACKENZIE

General
736 tons full load, 556 tons gross, 150 × 30 × 13½ × 10½ feet. Diesel. 1,000 B.H.P. Built by Burrard Drydock, N. Vancouver, B.C. Completed in 1950.

C. P. EDWARDS

General
571 tons full load, 338 tons gross, 144½ × 27 × 17½ × 9½ feet. Steam reciprocating. 375 I.H.P. Built by Collingwood Shipyards Limited. Completed in 1946.

BRANT

General
285 tons gross, 124½ × 23½ × 12 feet. Steam reciprocating. 62 I.H.P. Built by Government Shipyard, Sorel, Quebec. Completed in 1927.

GRENVILLE

General
677 tons full load, 479 tons gross, 155 × 30½ × 13½ × 9½ feet. Steam reciprocating. 900 I.H.P. Built by Polson Iron Works Limited. Completed in 1915.

SAFEGUARDER

General
665 tons gross, 160 × 29 × 11½ feet. Steam reciprocating. 1,350 I.H.P. Built at Southampton, United Kingdom. Completed in 1914.

CEYLON

Administration

The Royal Ceylon Navy was formed on 9 Dec. 1950 when the Navy Act was proclaimed.

Reduction

The strength of the Navy was reduced in 1964 as an economy measure, one frigate, two minesweepers and a tug being disposed of.

Captain of the Navy:

Commodore Rajanathan Kadirigamar, M.V.O.

Services Attaché in London:

Major J. E. D. Perera, CE.

Naval Base

The Naval Base is established at Trincomalee, which was a British base from 1795 until 1957.

Personnel

1963: 2,000 (150 officers and 1,850 ratings)
1964: 1,720 (140 officers and 1,580 ratings)
1965: 1,656 (118 officers and 1,538 ratings)

FRIGATE

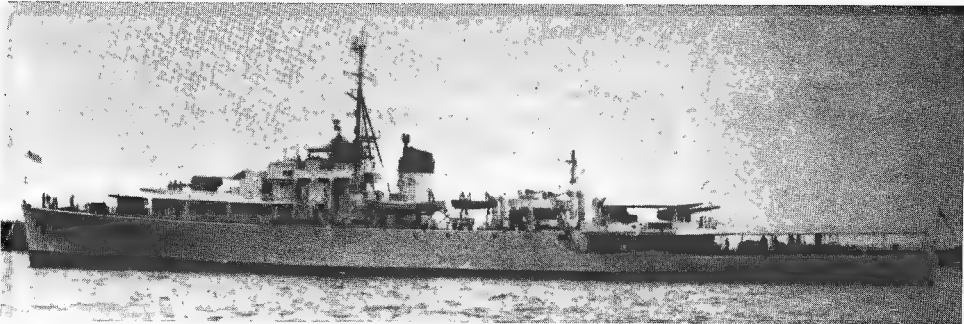
I Ex-Canadian "River" Class

GAJABAHU (ex-Misnak, ex-H.M.C.S. Hallowell)

Pennant No.: F 232
Builders: Canadian Vickers Ltd., Montreal, P.Q.
Launched: 8 Aug. 1944

Displacement: 1,445 tons standard (2,360 tons full load)
Dimensions: 283 (pp.), 295½ (w.l.), 301½ (o.a.) × 36½ × 13½ feet
Guns: 3—4 inch, 8—20 mm. AA.
Machinery: Triple expansion, 2 shafts.
I.H.P.: 5,500=20 kts.
Boilers: 2, of three-drum type
Oil fuel: 585 tons
Radius: 6,000 miles at 12 kts.
Complement: 160

General
Former Canadian "River" type frigate acquired by the Israeli Government in 1950 and sold by Israel to the Royal Ceylon Navy in 1959.



GAJABAHU

1963, Royal Ceylon Navy, Official

Recent Disposal
Sister ship *Mahasena* (ex-Miltakh, ex-Canadian *Violetta*, ex-H.M.C.S. *Orkney*) was sold early in June 1964 to a Hong Kong shipbreaker (with the escort minesweeper *Parakrama*) for £20,000.

Disposals of Escort Minesweepers
Of the two escort minesweepers of the "Algerine" class, *Parakrama* (ex-H.M.S. *Pickle*) was sold in June 1964 to a Hong Kong scrapyard, and *Vijaya* (ex-H.M.S. *Flyingfish*, ex-Tillsonburg) was returned to Britain.

HYDROFOIL CRAFT



HYDROFOIL CRAFT 1964, Royal Ceylon Navy, Official

I New Construction

Dimensions: 22½×9½ (hull), 10½ (o.a.) feet (Depth over side moulded: 3 feet; Draught at anchor: 3½ feet; Draught at speed: 1½ feet) official figures
Machinery: 2 Volvo Penta Aquamatic 100 H.P. engines. Total H.P.: 200=40 kts.

General
A new type of short hydrofoil craft added to the Navy List in 1964.

Boom Defence Vessel
The boom defence vessel *Baron* was purchased from Great Britain by the Colombo Port Commission (particulars and photograph in the 1958-59 and 1959-60 editions).

Disposal of Tug
The seagoing tug *Aliya* (ex-Adept, ex-Empire *Barbara*) was decommissioned in 1964 to be sold.

Casualties
During Ceylon's first major cyclone for 60 years, on 22 Dec. 1964, the seaward defence boat *Kotlya* was sunk, the minesweeper *Vijaya* was beached and broached, and the tugs YTM 1, YTM 2, YTM of "Tanac" class, and "Behest" of "Empire" class were all either broached, beached or sunk.

Disposal of Seaward Defence Boat
The seaward defence boat *Kotlya* (ex-H.M.S. *Doxford*) sank in Trincomalee Harbour during the cyclone of 22 Dec. 1964. It is officially stated that the vessel will be disposed of after salvaging.

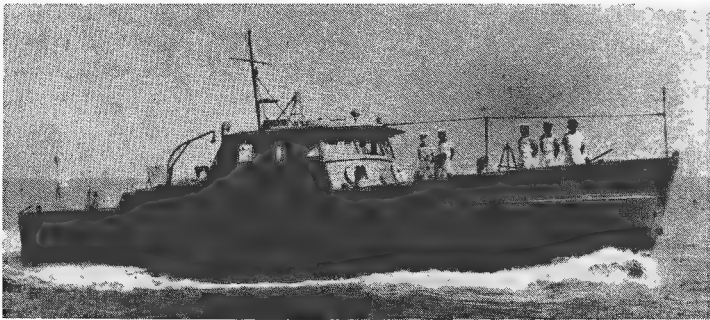
PATROL BOATS

2 New Construction

Displacement: 15 tons
Dimensions: 45½×12×3 feet
Machinery: 2 Thornycroft K6 M.S.I. engines. B.H.P.: 500

General
It was officially stated in 1965 that two short patrol boats are on order.

PATROL BOATS



LIHINIYA 1964, Royal Ceylon Navy, Official

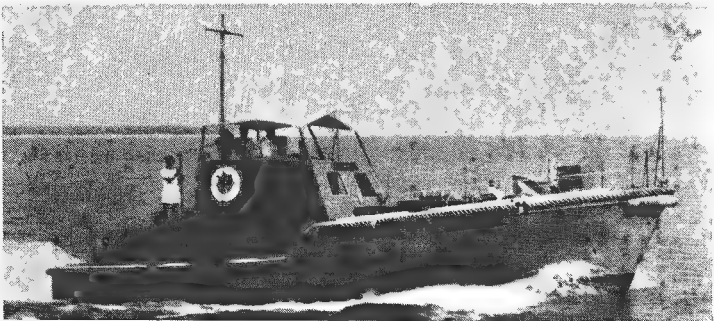
2 "Hansaya" Class

HANSAYA

LIHINIYA

Displacement: 36 tons
Dimensions: 63½ (pp.), 66 (o.a.) × 14 × 4 feet
Machinery: 3 General Motors diesels

General
"Hansaya" class long patrol boats built for the Royal Ceylon Navy at Venice by the Korody Marine Corporation. Another photograph of *Lihiniya* appears in the 1957-58 to 1959-60 editions.



KORAWAKKA 1964, Royal Ceylon Navy, Official

4 "Seruwa" Class

DIYAKAWA

KORAWAKKA

SERUWA

TARAWA

Displacement: 13 tons
Dimensions: 46 (pp.), 48 (o.a.) × 12 × 3 feet
Machinery: 2 Foden FD.6 diesels.

General
"Seruwa" class short patrol boats. A photograph of *Diyakawa* appears in the 1957-58 to 1959-60 editions.

CHILE

Administration

Minister of National Defence:

Señor Juan de D. Carmona.

Commander-in-Chief of the Navy:

Almirante Jacabo Neumann.

Chief of the Naval Staff:

Contra Almirante Jorge Swett.

Chief of the Chilean Naval Mission in Great

Britain and Naval Attaché in London:

Capitan de Navio Patricio Carvajal.

Chief of the Chilean Naval Mission in U.S.A.

and Naval Attaché in Washington:

Contra Almirante José F. Costa.

Personnel

1965: 15,000 (1,000 officers and 14,000 men)

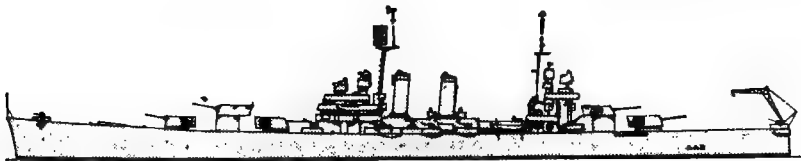
Mercantile Marine

Lloyd's Register of Shipping

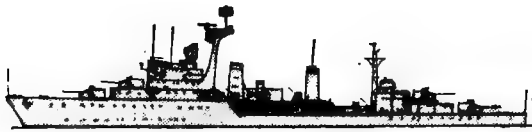
111 vessels of 284,085 tons gross

Silhouettes

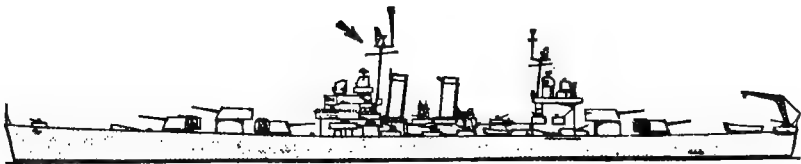
Scale: 150 feet=1 inch



PRAT



RIVEROS



O'HIGGINS



WILLIAMS



BLANCO ENCALADA, COCHRANE



COVADONGA, IQUIQUE



CASMA, CHIPANA, PAPUDO

CRUISERS (Cruceros)

2 "Prat" Class

(Ex-U.S. "Brooklyn" Class)

O'HIGGINS (ex-U.S.S. Brooklyn, CL 40)

PRAT (ex-U.S.S. Nashville, CL 43)

Name:	O'Higgins	Prat
Pennant No.:	CL 02	CL 03
Builders:	New York Navy Yard	New York S.B. Co.
Laid down:	12 Mar. 1935	24 Jan. 1935
Launched:	30 Nov. 1936	2 Oct. 1937
Completed:	18 July 1938	25 Nov. 1938
Displacement:	Prat: 10,000 tons standard (13,500 tons full load) O'Higgins: 9,700 tons standard (13,000 tons full load)	
Dimensions:	Length: 608½ (o.a.) feet. Beam: 69 feet. Draught: 24 feet (max.)	
Guns:	15—6 inch, 47 cal.; 8—5 inch, 25 cal.; 28—40 mm. AA.; 24—20 mm. AA.	
Aircraft:	2 helicopters (see Hangar notes)	
Armour:	4"–1½" belt, 3"–2" decks, 5"–3" turrets, 8" C.T.	
Machinery:	Westinghouse geared turbines, 4 shafts. S.H.P.: 100,000=32.5 kts.	
Boilers:	8 Babcock & Wilcox Express type	
Oil fuel:	2,100 tons	
Radius:	14,500 miles at 15 kts.	
Complement:	888 to 975 (peace)	

General

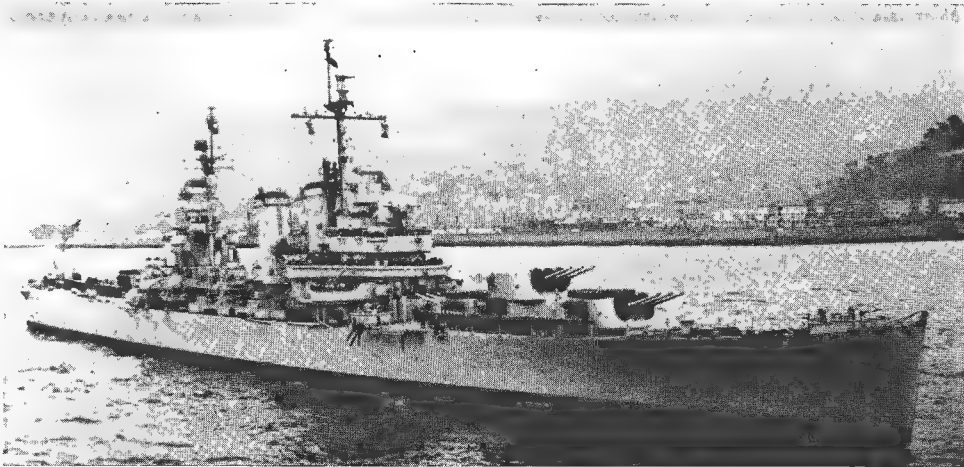
Former "light" cruisers of the U.S. "Brooklyn Class. Purchased from the United States in 1951 at a price representing 10 per cent of their original cost (\$37,000,000) plus the expense of reconditioning them.

Hangar

The hangar in the hull right aft could accommodate 6 aircraft if necessary together with engine spares and duplicate parts, though 4 aircraft was the normal capacity. The existence of this hangar resulted in a very wide and nearly at counter and high freeboard aft and also gave the after guns higher command. Above the hangar two catapults were mounted as far outboard as possible, and a revolving crane was placed at the stern extremity overhanging the aircraft hatch.

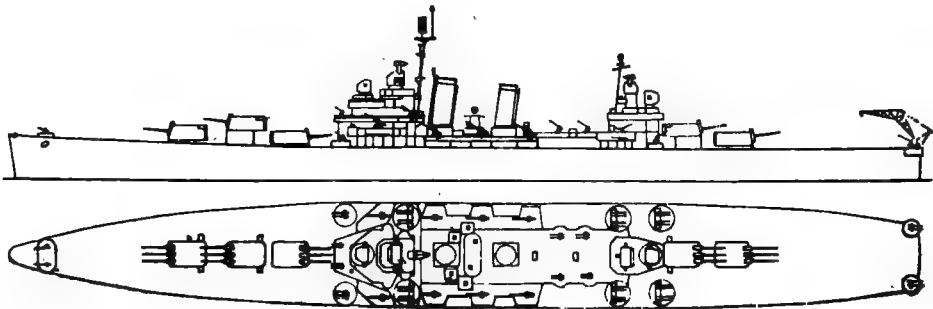
Drawing

Port elevation and plan. Scale: 128=1 inch.



O'HIGGINS

1962, Chilean Navy, Official





PRAT (see previous page)

1961, Chilean Navy, Official

DESTROYERS (Destructoros)



ALMIRANTE RIVEROS (lattice mainmast)

1962, Wright & Logan



ALMIRANTE WILLIAMS (pole mainmast)

1960, courtesy Vickers-Armstrongs Ltd., Barrow-in-Furness Builders:

2 "Almirante" Class

Name:	RIVEROS	WILLIAMS
Pennant No.:	DD 18	DD 19
Builders:	Vickers-Armstrongs Ltd., Barrow	Vickers-Armstrongs Ltd., Barrow
Laid down:	12 Apr. 1957	20 June 1956
Launched:	12 Dec. 1958	5 May 1959
Handed over:	16 Feb. 1962	26 Mar. 1960
Displacement:	2,730 tons standard (3,300 tons full load)	
Dimensions:	402 (o.a.)×43×13½ feet	
Guns:	4—4 inch AA.; 6—40 mm. AA.	
Guided weapons:	"Seacat" (see Missile notes)	
Tubes:	5—21 inch in a quintuple bank	
A/S weapons:	2 squid three-barrelled mortars	
Machinery:	Vickers-built Parsons geared turbines of Pametrada design, 2 shafts, S.H.P.: 54,000=34.5 kts.	
Boilers:	2, of Babcock & Wilcox type	
Range:	6,000 miles at 16 kts.	
Complement:	266 officers and ratings	

General
Announced in Jan. 1954, that two new destroyers were to be purchased from Great Britain. Order received from the Chilean Government in May 1955. The layout, and general arrangements are strictly conventional, with two funnels. Bunks are fitted for the entire crew.

Electrical
The electrical system is on alternating current. Galleys are all electric. There is widespread use of fluorescent lighting. Degaussing cables are fitted.

Operational
The Operations Room and other similar spaces are air-conditioned. There are twin rudders for exceptional manoeuvrability. The ventilation and heating systems have been designed to suit the Chilean coastline, extending from the tropics to Cape Horn. The latest type of warship radar is fitted, specially developed for these ships to work in conjunction with new fire control systems developed by Vickers-Armstrongs.

Appearance
Riveros differs from Williams in having a lattice instead of a pole mainmast.

Missiles
British "Seacat" radar controlled short range surface-to-air weapon installations were fitted at the Chilean Navy Yard at Talcahuano in 1964.

Gunnery
The main armament is disposed in four single mountings, two superimposed forward and two aft. The 4-inch guns are entirely automatic with a range of 12,500 yards (or over 7 miles) and an elevation of 75 degrees.

Construction
Riveros was completed by Dec. 1960, but she was not handed over to Chile until 16 Feb. 1962.

Disposal
Of the six destroyers of the "Serrano" class, Hyatt, Orella, Riquelme and Serrano were stricken from the list in Jan. 1963, and Aldoa and Videla in 1958.

Destroyers continued

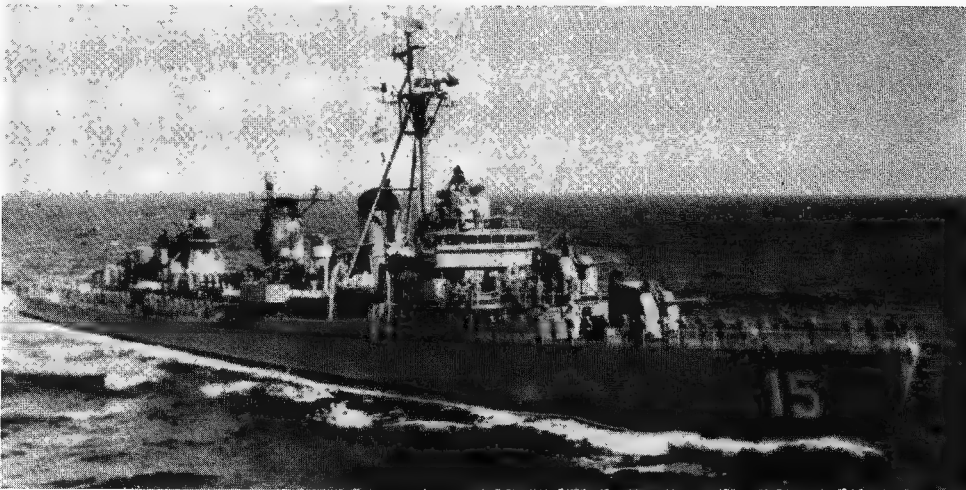
2 Ex-U.S. "Fletcher" Class

BLANCO ENCALADA (ex-U.S.S. Wadleigh, DD 689)
COCHRANE (ex-U.S.S. Rooks, DD 804)

Name:	Blanco Encalada	Cochrane
Pennant No:	DD14	DD 15
Builders:	Bath Iron Works Corpn., Bath	Todd Pacific Shipyards
Launched:	7 Aug. 1943	6 June 1944
Completed:	19 Oct. 1943	2 Sep. 1944
Displacement:	2,100 tons standard (2,750 tons full load)	
Dimensions:	376½ (o.a.) × 39½ × 18 (max.) feet	
Guns:	4—5 inch, 38 cal. d.p., 6—3 inch, 50 cal. AA.	
Tubes:	5—21 inch quintupled	
A/S weapons:	2 Hedgehogs, 1 D.C. rack, 6 K-guns	
Machinery:	2 General Electric geared turbines, 2 shafts, S.H.P.: 60,000 = 35 kts.	
Boilers:	4 Babcock & Wilcox	
Complement:	250 officers and ratings	

General
Former United States destroyers of the "Fletcher" class. Transferred to Chile under the Military Aid Programme in 1963.

Photographs
A photograph of Blanco Encalada (initial B on bows) appears in the 1963-64 and 1964-65 editions.



COCHRANE

1965, Chilean Navy, Official

FRIGATES (Fragatas)

2 "Baquedano" Class
(Ex-Canadian "River" Class)

Displacement:	1,455 tons standard (2,125 tons full load)
Dimensions:	283 (pp.), 295½ (w.l.), 301½ (o.a.) × 36½ × 13½ feet
Guns:	2—4 inch AA., 10—20 mm. AA.
A/S weapons:	6 D.C.T.
Machinery:	2 sets triple expansion, 2 shafts, I.H.P.: 5,500 20 kts.
Boilers:	2, of 3-drum type
Oil fuel:	646 tons
Radius:	9,500 miles at 12 kts.
Complement:	140

General
Purchased from the Royal Canadian Navy in May 1946. Formerly had initial letters of names on bows. Baquedano was officially withdrawn in 1965.

Photographs
A photograph of Iquique appears in the 1964-65 edition.



COVADONGA

1965, Chilean Navy, Official

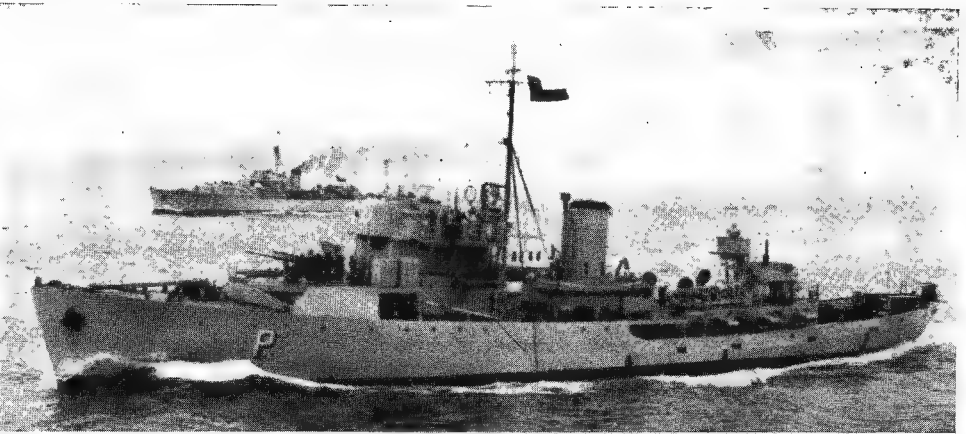
Name	No.	Builders	Launched	Completed
COVADONGA (ex-Seacliff, ex-Megantio)	PF 32	Davie Shipbuilding, Lauzon	8 July 1944	26 Sep. 1944
IQUIQUE (ex-Joliette)	PF 31	Morton Ltd., Quebec City	12 Nov. 1943	14 June 1944

CORVETTES (Corbetas)

3 "Casma" Class
(Ex-Canadian "Flower" Class)

Name	Launched	Completed
CASMA (ex-Stellarton)	27 Apr. 1944	29 Sep. 1944
CHIPANA (ex-Strathroy)	15 June 1944	20 Nov. 1944
PAPUDO (ex-Thorlock)	15 May 1944	13 Nov. 1944
Displacement:	1,060 tons standard (1,340 tons full load)	
Dimensions:	193 (pp.), 197 (w.l.), 205 (o.a.) × 33 × 13½ feet (max.)	
Guns:	1—4 inch, 6—20 mm. AA.	
A/S weapons:	4 D.C.T.	
Machinery:	Triple expansion, I.H.P.: 2,750=16 kts. (max.)	
Boilers:	2, of 3-drum type	
Oil fuel:	350 tons	
Radius:	7,000 miles at 10 kts.	
Complement:	66	

General
Built by Morton Ltd., Quebec City, P.Q. (Casma) and Midland Shipyards Ltd., Midland, Ont. (other two). Purchased from Canada in 1946. Chipana serves as a survey vessel. Formerly distinguished by initial letters of their names: C—Casma; CH—Chipana; P—Papudo, on bows, but now have pennant number PG 37, PG 38 and PG 39, respectively.



PAPUDO

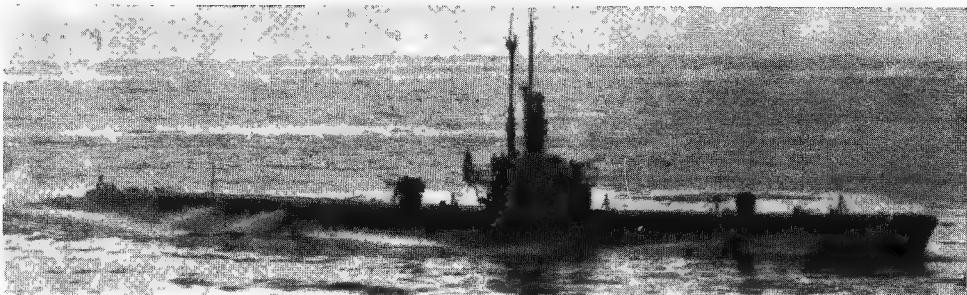
1962, Chilean Navy, Official

SUBMARINES

2 Ex-U.S. "Balao" Class

SIMPSON (ex-U.S.S. Spot, SS 413)
THOMSON (ex-U.S.S. Springer, SS 414)

Name:	Simpson	Thomson
Pennant No.:	SS 21	SS 22
Builders:	Mare Island Navy Yard	Mare Island Navy Yard
Launched:	20 May 1944	3 Aug. 1944
Completed:	3 Aug. 1944	18 Oct. 1944
Displacement:	1,526 tons standard, 1,816 tons surface (2,425 tons submerged)	
Dimensions:	311½ × 27 × 17 feet	
Guns:	1—5 inch, 25 cal., d.p., 2—40 mm. AA.	
Tubes:	10—21 inch (6 bow, 4 stern)	
Machinery:	G.M. 2-stroke diesels, B.H.P.: 6,500=20 kts. (surface), H.P.: 4,610=10 kts. (submerged)	
Oil fuel:	300 tons	
Radius:	12,000 miles at 10 kts.	
Complement:	80	



THOMSON

1962, Chilean Navy, Official

General
Thomson was transferred at San Francisco, Calif., on 23 Jan. 1961 under the Military Aid Program. Simpson was transferred at the end of 1961 under MAP.

Disposals
The old submarines Almirante Simpson and Capitan O'Brien were removed from the list in 1958, and sister ship Capitan Thomson was sold in 1959.

PATROL VESSELS



LAUTARO 1964, Chilean Navy, Official

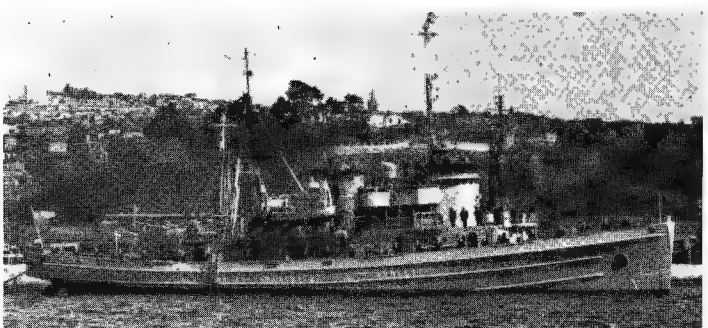
3 "Lautaro" Class

Name	Launched	Pennant No.
LAUTARO (ex-U.S.S. ATA 122)	27 Nov. 1942	PP 62
LEUCOTON (ex-U.S.S. ATA 200)	8 Sep. 1944	PP 61
LIENTUR (ex-U.S.S. ATA 177)	5 June 1944	PP 60

Displacement: 534 tons standard (835 tons full load)
Dimensions: 134½ (w.l.), 143 (o.a.) × 33 × 13½ (max.) feet
Guns: 1—3 inch AA., 2—20 mm. AA.
Machinery: General Motors diesel-electric, S.H.P.: 1,500=12.5 kts.
Oil fuel: 187 tons
Complement: 33

General
Former United States Navy auxiliary ocean Tugs of the ATA type ("Maricopa" class), originally ocean rescue tugs (ATRs), transferred to the Chilean Navy and reclassified as patrol vessels. Launch dates above. Built by Levingstone Shipbuilding Co., Orange, Texas, U.S.A. (Lautaro and Lientur) and Gulfport Boiler & Welding Works, Port Arthur, Texas (Leucoton).

SURVEY SHIPS



YELCHO 1963, Chilean Navy, Official

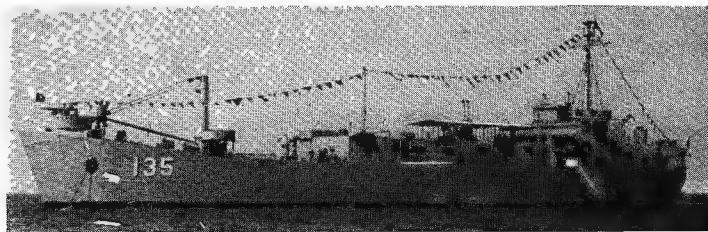
2 Ex-U.S. Fleet Ocean Tug Type

JANEQUEO (ex-U.S.S. Potawatomi, ATF 109) Pennant No. AGS 65
YELCHO (ex-U.S.S. Tekesta, ATF 93) Pennant No. AGS 64

Displacement: 1,235 tons standard (1,675 tons full load)
Dimensions: 195 (w.l.), 205 (o.a.) × 38½ × 15½ (max.) feet
Guns: 1—3 inch, 4—40 mm. AA., 2—20 mm. AA.
Machinery: 4 diesels with electric drive, B.H.P.: 3,000=16.5 kts.
Complement: 85

General
Former United States fleet ocean tugs of the ATF type ("Apache" class) fitted with powerful pumps and other salvage equipment. Janequeo was built by United Engineering Co., Alameda, California, laid down on 19 Oct. 1942, launched on 3 Apr. 1943, completed on 12 Feb. 1944, and loaned to Chile by the U.S.A. under the Military Aid Programme in 1963. Yelcho was built by Commercial Iron Works, Portland, Oregon, laid down on 7 Sep. 1942, launched on 20 Mar. 1943, completed on 16 Aug. 1943, and loaned to Chile by the U.S.A. on 15 May 1960, having since been employed as Antarctic research ship and surveying vessel.

HELICOPTER SUPPORT SHIP



AGUILA 1965, Chilean Navy, Official

Barcaza Porta-Helicoptero

AGUILA ARV 135 (ex-U.S.S. Aventinus, ARVE 3, ex-LST 1092)

Displacement: 1,625 tons light (4,100 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.) × 50 × 11½ feet
Guns: 8—40 mm. AA.
Machinery: G.M. diesels, 2 shafts, B.H.P.: 1,800=11.6 kts.

General
Former United States aircraft repair ship (engine) built by American Bridge Co., Ambridge, Pa. Laid down on 8 Jan. 1945, launched on 24 Mar. 1945, and completed on 19 May 1945. Transferred to the Chilean Navy by U.S.A. in 1963 under the Military Aid Programme. Multi-purpose helicopter support ship, destroyer tender and submarine repair ship.

LANDING SHIPS (Barcazas)



ASPIRANTE MOREL 1965, Chilean Navy, Official

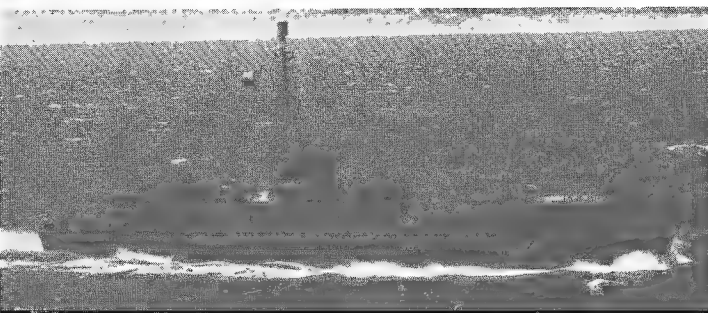
3 "Aspirante" Class

ASPIRANTE GOICOLEA (ex-U.S.S. LSM 400)	LSM 89
ASPIRANTE IZAZA (ex-U.S.S. LSM 295)	LSM 91
ASPIRANTE MOREL (ex-U.S.S. Aloto, LSM 444)	LSM 92

Displacement: 743 tons standard (1,095 tons full load)
Dimensions: 196½ (w.l.), 203½ (o.a.) × 34½ × 7½ feet
Machinery: Diesel, 2 shafts, B.H.P.: 2,800=12 kts.
Oil fuel: 60 tons
Radius: 2,500 miles
Complement: 60

General
Former United States medium landing ships. Aspirante Izaza was launched in 1944, and the other two in 1945. Aspirante Morel (ex-Aloto) was leased to Chile on 2 Sep. 1960 at Pearl Harbour to replace the older LSM of the name.
Disposals
Sister ships, Aspirante Morel (ex-U.S.S. LSM 417) was withdrawn from service in 1958, and Guardiamarina Contreras (ex-U.S.S. LSM 113) in 1959.

LANDING CRAFT (Barcazas)



EDUARDO LLANOS 1964, Chilean Navy, Official

3 "Cabo Bustos" Class

CABO BUSTOS LCI 197	EDUARDO LLANOS LCI 98	SOLDADO CANAVES
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Displacement: 230 tons standard (387 tons full load)
Dimensions: 159 × 23½ × 5½ feet
Machinery: Diesel, 2 shafts, B.H.P.: 1,320=14 kts.
Oil fuel: 110 tons
Radius: 9,000 miles at 12 kts.
Complement: 80

General
Former United States infantry landing craft. Ex-LCIL 878, ex-LCIL 1025 and ex-LCIL 1027, respectively. All launched in 1943. Named after personnel killed in action during the war with Peru and Bolivia, 1879-80.
Sister ships Grumete Bolados, Grumete Diaz and Grumete Tellez were withdrawn from Service in 1958.

4 "Grumete" Class

GRUMETE BOLADOS LCU 95	GRUMETE TELLEZ LCU 93
GRUMETE DIAZ LCU 96	OROMPELLO LCU 94

Displacement: 143 to 160 tons light (309 to 329 tons full load)
Dimensions: 105 (w.l.), 119 (o.a.) × 32½ × 5 (max.) feet
Machinery: Diesel, 3 shafts, B.H.P.: 675=10 kts.
Oil fuel: 11 tons
Radius: 700 miles at 7 kts.
Complement: 12

General
Former United States tank landing craft of the LCT (6) type. Grumete Bolados, Grumete Diaz and Grumete Tellez are ex-LCU 1273, ex-LCU 1396 and ex-LCU 1458. Launched in 1944. Transferred in 1960. Orompello was transferred by the U.S.A. in 1964.

There is also the auxiliary floating dry-dock:—

ARD 130 (ex-U.S.S. ARD 32)

Displacement: 5,200 tons
Dimensions: 492 × 84 × 5½ to 33½ feet

General
Former United States auxiliary repair dry-dock (ARD). Leased to Chile by the U.S.A. on 15 May 1960. Delivered to the Chilean Navy in 1960. Loaned for five years.
Disposals
The submarine depot ship Arancano was stricken from the list in 1963.
The coastguard vessel Piloto Sibbald was stricken from the list in 1963, and the old Yelcho, employed on surveying service, in 1959.

MOTOR TORPEDO BOATS

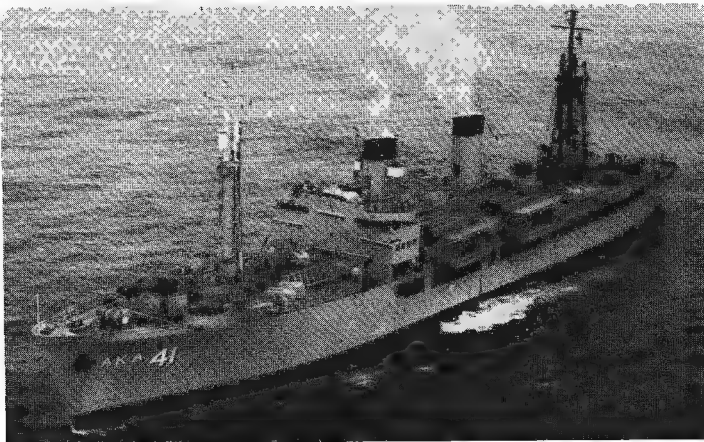
4 New Construction

FRESIA	GUACOLDA	QUIDORA	TEGUALDA
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Displacement: 160 tons
Dimensions: 140 × 23 × 5 feet
Guns: 2—40 mm. AA.
Tubes: 4—21 inch
Machinery: Diesels, 4 shafts B.H.P.: 12,000=42 kts.

General
Squadron of the German "Jaguar" type being built in Spain at Cadiz.

ATTACK TRANSPORT (Transporte de Ataque)



PRESIDENTE PINTO 1965, Chilean Navy, Official

PRESIDENTE PINTO (ex-Zenobia, AKA 52.) Pennant No. AKA 41
Displacement: 4,100 tons standard (6,744 tons full load)
Dimensions: 426 (o.a.) x 58 x 16 (max.) feet
Guns: 1—4.7 inch, 2—3 inch, 8—40 mm.
Machinery: Turbo-electric. 2 shafts. S.H.P.: 6,000=17 kts.
Boilers: 2 Wickes
Complement: 225

General
Former United States attack cargo ship of the AKA type. Built by Walsh-Kaiser. Launched on 6 July 1945. Purchased from the U.S. Navy in Nov. 1946. Served as a training ship for midshipmen. Symbol changed from APA to AKA in 1965. Sister ship *Presidente Errazuriz* (ex-Xenia, AKA 51), APB 40 was removed from the Navy List in 1962.

TRANSPORTS



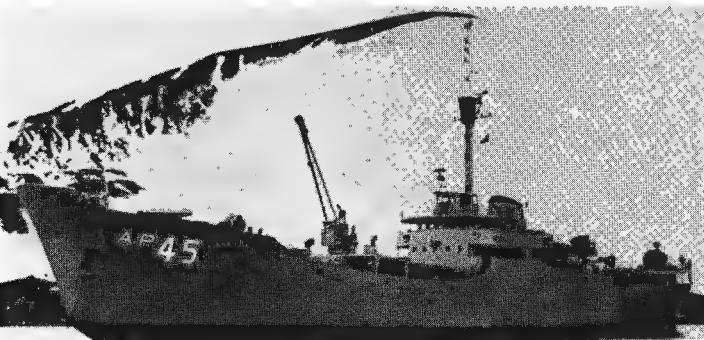
ANGAMOS 1965, Chilean Navy, Official

ANGAMOS Pennant No. AP 48
Displacement: 3,800 tons standard
Dimensions: 315 (pp.), 340 (o.a.) x 46 x 19½ feet
Machinery: Triple expansion. I.H.P.: 2,200=12 kts.
Coal: 575 tons
Complement: 72 +74 passengers or troops

General
Built at Aalborg. Laid down on 5 Apr. 1940. Launched in 1941. Delivered in Feb. 1946. Named after the naval victory which, on 8 October 1879, virtually decided the issue of the war against Peru and Bolivia.

Disposals
The old transport *Pilcomayo* was removed from the effective list in 1959. The transport *Micalvi* (ex-Boston Lines, ex-Bragi) was stricken from the list in 1963.

ANTARCTIC PATROL SHIP

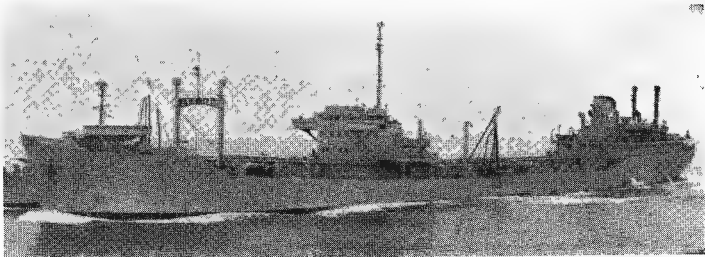


PILOTO PARDO 1965, Chilean Navy, Official

PILOTO PARDO Pennant No. AP 45
Displacement: 1,250 tons light, 2,000 tons standard (3,000 tons full)
Dimensions: 269 x 39 x 15 feet
Aircraft: 1 helicopter
Machinery: 2 diesel-electric. H.P.: 2,000=14 kts.
Complement: 44 (plus 24 passengers)

General
Built by Haarlemsche Scheepsbouw Mij, Haarlem, Netherlands. Antarctic patrol ship, transport and research vessel with reinforced hull to navigate in ice. For special service in Southern Ocean. Officially listed as transport. Delivered in 1959.

OILERS



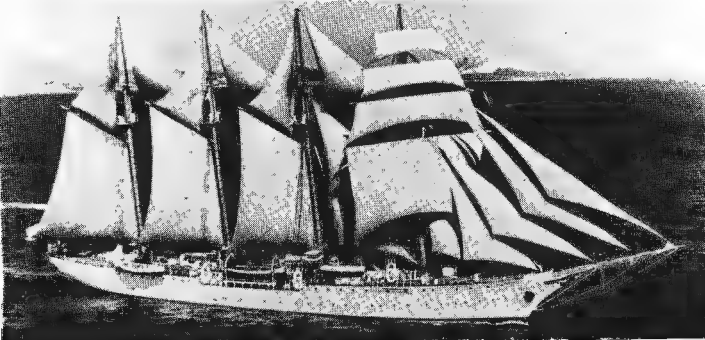
ALMIRANTE JORGE MONTT 1962, Chilean Navy, Official

ALMIRANTE JORGE MONTT Pennant No. AO 52
Displacement: 9,000 tons standard (17,500 tons full load)
Measurement: 11,800 tons gross, 17,750 tons deadweight
Dimensions: 548 x 67½ x 30 feet
Machinery: Rateau Bretagne geared turbines. 1 shaft.
S.H.P.: 6,300=14 kts.
Boilers: 2 Babcock & Wilcox
Radius: 16,500 miles at 14 kts.

General
Naval squadron supply tanker. Built by Ateliers et Chantiers de la Seine Maritime, Le Trait, France. Laid down in 1954. Launched on 14 Jan. 1956. Completed in Mar. 1956.

Disposals
The old oilers *Maipo*, AO 50, and *Rancagua*, AO 51, were withdrawn from service in 1965, it is officially stated.

TRAINING SHIP (Buque Escuela)



ESMERALDA 1965, Chilean Navy, Official

ESMERALDA (ex-Don Juan de Austria) Pennant No. BE 43
Displacement: 3,040 tons standard (3,673 tons full load)
Dimensions: 308½ (o.a.), 260 (pp.) x 43 x 23 (max.) feet
Guns: 2—57 mm.
Sail area: Total 26,910 sq. feet
Machinery: 1 Fiat Auxiliary Diesel. 1 shaft. B.H.P.: 1,400=11 kts.
Range: 8,000 miles
Complement: 271 plus 80 cadets

General
Four-masted schooner completed in 1952. Built in Spain by the Echevarrieta Yard, Cadiz, and originally intended for the Spanish Navy. Transferred to Chile on 12 May, 1953. Near sister ship of *Juan Sebastian de Elcano* in the Spanish Navy. Similar to the Brazilian training ship *Almirante Sadanha*. Replaced transport *Presidente Pinto* as training ship.

Disposals
The smaller and older training ship (school tender) *Vidal Gormaz* was withdrawn from service in 1958. The very old training vessel *Orampallo* (former minelayer) was scrapped in 1957.

SEAGOING TUGS (Remolcadores de Alta Mar)

HUEMUL (ex-Vilumilla) Pennant No. YT 124
Displacement: 320 tons
Dimensions: 100 (w.l.) x 22 x 13 feet
Machinery: Triple expansion. I.H.P.: 1,050=11 kts.
Boiler: 1
Coal capacity: 35 tons

General
Built at Valdivia and launched in 1937. Another of the same type, *Contra maestre Brito* (ex-Pelantaro), was lost.

Reclassification
The fleet ocean tug *Janequeo* (ex-U.S.S. *Potawatomi*) was reclassified as a surveying ship in 1965 (see previous page).

4 "Cabrales" Class

CABRALES ATA 71 **GALVARINO ATA 74**
COLOCOLO ATA 73 **SOBENES ATA 72**
Displacement: 790 tons
Dimensions: 126½ x 27 x 12 (mean) feet
Machinery: Triple expansion. I.H.P.: 1,050=11 kts.
Fuel: 130 tons coal (except *Cabrales*, 135 tons oil)

General
All built by Bow, McLachlan & Co., Paisley. *Cabrales* was launched on 24 Oct. 1929 and *Sobenes* on 23 Oct. 1929. *Cabrales* was converted into an oil burner in 1959. These ships are classed as coastguard vessels. A photograph of *Galvarino* appears in the 1953-54 to 1957-58 editions. Sister ship *Janequeo* was withdrawn from service in 1958, and disposed of.

HARBOUR TUGS

ANCUD (YT 104) **FORTUNA** (YT 123) **REYES** (YT 120)
CAUPOLICAN (YT 127) **GALVEZ** (YT 102) **UGARTE** (YT 107)
CORTEZ (YT 128) **MOCTEZUMA** (YT 108) **YAGAN** (YT 126)
MONREAL (YT 105)

PEOPLE'S REPUBLIC OF CHINA

Ships

- 4 Destroyers
- 4 Destroyer Escorts
- 12 Frigate Escorts
- 30 Submarines
- 30 Submarine Chasers
- 150 Motor Torpedo Boats/Fast Patrol Boats.
- 70 Motor Gunboats/River Gunboats

- 40 Minesweepers
- 60 Amphibious Types/Landing Ships
- 50 Auxiliaries
- 380 Miscellaneous Service Craft

Block numbering system:—
Submarines: 100 series; Major Surface Ships:
200 series; Amphibious Ships: 300 series.

Personnel

1965: 125,000 officers and men, including 15,000 naval air force and 28,000 marines.

Mercantile Marine

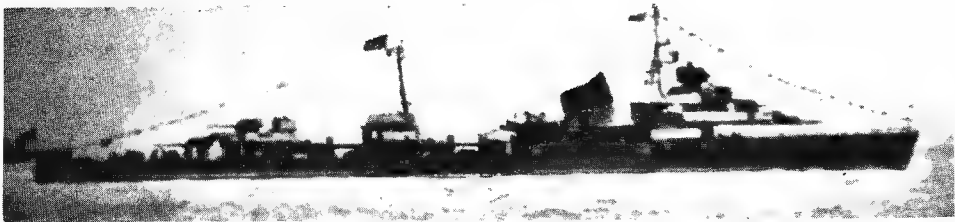
Lloyd's Register of Shipping:
216 vessels of 535,427 tons gross

DESTROYERS

4 Ex-Soviet "Gordy" Class

ANSHAN	CHANG CHUN	FU CHUN
Displacement:	1,657 tons standard (2,150 tons full load)	
Dimensions:	357½ (pp.), 377 (o.a.) × 33½ × 13 feet	
Guns:	4—5.1 inch, 8—37 mm. AA.	
Tubes:	6—21 inch (tripled)	
A/S weapons:	8 D.C.T.	
Mines:	100	
Machinery:	Tosi geared turbines. 2 shafts. S.H.P.: 50,000=36 kts.	
Boilers:	3-drum type	
Oil fuel:	500 tons	
Complement:	250	

General
Of Odero-Terni-Orlando design. All launched in 1936-41. Fitted for minelaying. Two "Skoryi" class destroyers are also reported to have been acquired from U.S.S.R.



CHANG CHUN

Added 1960

Cruisers

The old cruiser Kaganovitch was reported to have been lent or leased by the U.S.S.R. to the People's Republic of China. For particulars see U.S.S.R. section.

The old light cruiser Pei Ching (ex-Huang Ho, ex-Victory, ex-Chungking, ex-H.M.S. Aurora is now a hulk. For particulars see 1959-60 and earlier editions.

FRIGATES

4 "Riga" Class Destroyer Escort Type

CH'ENG TU KUEI LIN	KUEI YANG K'UN MING
Displacement:	1,200 tons standard (1,600 tons full load)
Dimensions:	295 (o.a.) × 31½ × 10 feet

- Guns: 3—3.9 d.p. (single mounts); 3—37 mm. AA.
- Tubes: 3—21 inch (3 torpedoes)
- A/S weapons: 4 depth charge projectors
- Machinery: Geared turbines. 2 shafts. S.H.P.: 24,000—28 kts.
- Boilers: 2
- Oil fuel: 300 tons
- Complement: 200

General

Built in China. First of the class, launched on 28 Apr. 1956 at Hutang Shipyard, Shanghai, had light tripod mast, but was later converted with heavier mast and larger bridge as in the other three. Second vessel built by the same yard was launched on 26 Sep. 1956. Both fitted with mine rails (mine capacity 50). Third vessel was built at Shanghai. Only four "Riga" class ships were built, the last in 1957 by Hutang Shipyard.

2 Ex-Japanese Escort Destroyer Types

HUI AN (ex-Shisaka)	
Displacement:	940 tons standard (1,020 tons full load)
Dimensions:	255 (w.l.). 258½ (o.a.) × 30 × 10 feet
Guns:	2—4.7 inch, 6 M.G.
Machinery:	2 Diesels, 2 shafts. B.H.P.: 4,200—19.5 kts.
Complement:	150

General
Ex-Japanese "Ukuru" class escort destroyer. Launched in 1943. Completed in 1945. Rearmed in 1955.

CHANG PAI (ex-Japanese Oki, ex-Chinese Ku An)	
Displacement:	870 tons standard (1,020 tons full load)
Dimensions:	237½ (pp.), 250 (w.l.), 255 (o.a.) × 30 × 10 feet
Guns:	2—3.9 inch; 2—45 mm. AA.
A/S weapons:	60 D.C.
Machinery:	2 Diesels. 2 shafts. B.H.P.: 4,200—19.7 kts.
Complement:	150



CHANG PAI

Added 1953. Hajime Fukaya

General

Ex-Japanese Type A or "Etorofu" class. Buile by Uruga Dock Co. Ltd. Laid down on 27 Feb. 1942. Launched on 20 Oct. 1942. Completed on 31 Mar.

1943. Rearmed in 1955. One raked funnel, two pole masts with tripod bases. Sister ship of Lin An in Taiwan (National Republic of China) Navy.

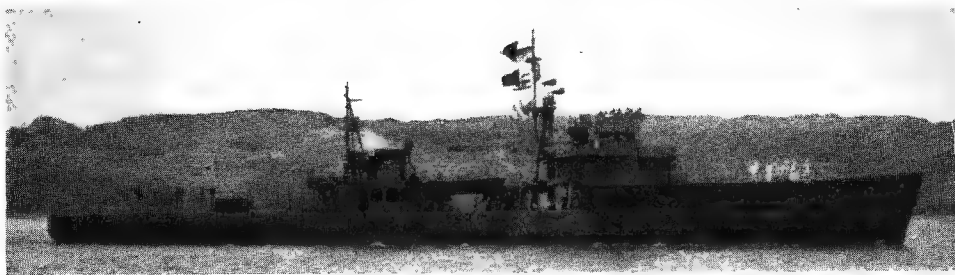
5 Ex-Japanese Corvette Types

SHEN YANG (ex-Yuang An, ex-Mukden, ex-No. 81)	
Displacement:	745 tons standard (810 tons full load)
Dimensions:	206½ (pp.), 216½ (w.l.), 221½ (o.a.) × 27½ × 9½ feet
Guns:	2—3.9 inch, 4—37 mm. A.A.
A/S weapons:	120 D.C.
Machinery:	2 Diesels. B.H.P.: 1,900—16.5 kts.
Radius:	6,500 miles at 14 kts.
Complement:	136

General
Ex-Japanese C or No. 1 Type. Built in 1944-45. Rearmed in 1955. Sister ship Chi An is now a hulk.

CHANG SHA (ex-Chinese Chieh 12, ex-No. 118)
CHI NAN (ex-Wei Hai, ex-Chieh 6, ex-No. 194)
HSI AN (ex-Chinese Chieh 14, ex-Japanese No. 198)
WU CHANG (ex-Chinese Chieh 5, ex-Japanese No. 14)

Name:	Chang Sha	Hsi An
Builders:	Kawasaki Sensha Works	Mitsubishi, Zosen Co., Nagasaki
Laid down:	8 June 1944	17 Jan. 1945
Launched:	18 Oct. 1944	26 Feb. 1945
Completed:	27 Dec. 1944	31 Mar. 1945
Displacement:	740 tons standard (900 tons full load)	
Dimensions:	213½ (pp.), 223 (w.l.), 228 (o.a.) × 28½ × 10 feet	
Guns:	2—3.9 inch or 4.7 inch, 3—3 inch or 3 or 6—37 mm. AA.; 4 —25 mm. or 3—20 mm. AA.	
A/S weapons:	120 D.C.	
Machinery:	1 steam turbine. S.H.P.: 2,500—17.5 kts.	
Radius:	4,500 miles at 14 kts.	
Complement:	160	



CHI AN

Added 1953, Hajime Fukaya



CHANG SHA

Added 1957, Hajime Fukaya

General

Ex-Japanese Type D or Kaibokan Class No. 2 Type.

Thin trunked funnel amidships. Pole masts with tripod bases.

Frigates—Continued

Ex-Japanese Sloop (Gunboat) Type

NAN CHANG (ex-Chinese *Chang Chi*, ex-Japanese *Uji*)

Displacement: 950 tons standard (1,206 tons full load)

Dimensions: 249½ (pp.), 257½ (w.l.), 264 (o.a.) × 31 × 8½ feet

Guns: 2—3.9 inch; 2—3 inch, 4—20 mm. AA.

Machinery: 2 turbines. S.H.P.: 4,600=20.15 kts.

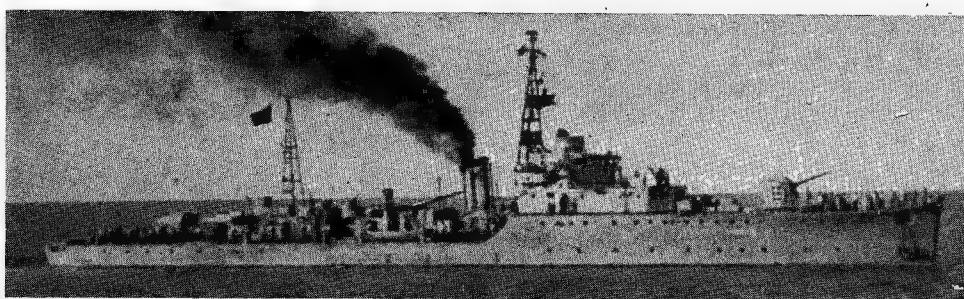
Boilers: 2

Radius: 3,460 miles at 14 kts.

Complement: 170

General

Former Japanese sloop or gunboat. Built at Sakurajima Works, Osaka. Launched on 25 Sep. 1940. Completed in 1941. Rearmed in 1955.



NAN CHANG

1956, K. Long

I Ex-Canadian Corvette Type

KUANG CHOU (ex-Chinese *Yuan Pei*, ex-H.M.C.S. *Bowmanville*, ex-Nunney *Castle*)

Displacement: 1,100 tons standard (1,580 tons full load)

Dimensions: 252 (o.a.) × 36½ × 15½ (max.) feet

Guns: 2—5.1 inch, 1—45 mm. AA., 5—37 mm. AA.

Machinery: Triple expansion, I.H.P.: 2,800=16.5 kts.

Boilers: 2, of three-drum type

Oil fuel: 480 tons

Radius: 8,400 miles at 10 kts.

Complement: 100

General

Built by Wm. Pickersgill & Sons, Ltd., Sunderland. Laid down on 12 Aug. 1943. Launched on 26 Jan. 1944. Completed on 8 Oct. 1944.

2 Ex-British Corvette Type

KAI FENG (ex-S.S. *Cloverlock*, ex-H.M.S. *Clover*)

LIN I (ex-S.S. *Ziang Teh*, ex-H.M.S. *Heliotrope*, ex-U.S.S. *Surprise*)

Displacement: 1,020 tons standard (1,280 tons full load)

Dimensions: 190 (pp.), 205 (o.a.) × 33 × 14½ feet

Guns: 2—3.9 inch; 1—45 mm. AA.; 4—37 mm. AA. (*Kai Feng*)

Machinery: Triple expansion, I.H.P.: 2,750=16 kts.

Boilers: 2 S.E.

Fuel: 350 tons coal

Radius: 7,000 miles at 10 kts.

Complement: 78

General

Both built in 1940-41. Converted from merchant vessels by Chinese Republicans and re-armed. Existence of sister ship, former corvette, converted, ex-Coppercliff (ex-Wan Lee, ex-Ta Lun) is doubtful.

SUBMARINES

2 "G" Class. Ballistic Missile Type

General

Ballistic missile submarines of the Soviet "G" class. One completed, another building at Dairen in 1964. See particulars in U.S.S.R. section.

21 Soviet "W" Class

Displacement: 1,050 tons standard, 1,300 tons (surface), 1,600 tons (submerged)

Dimensions: 245 (o.a.) × 24 × 14 feet

Guns: 2—25 mm.

Tubes: 6—21 inch (4 forward, 2 aft)

Mines: 40 mines or 20 torpedoes

Machinery: Diesel-electric, 2 shafts. Diesels: B.H.P. 4,000=17 kts. (surface)

Electric motors: H.P.: 2,500=15 kts. (submerged)

Radius: 13,000 to 16,500 miles

Complement: 60

General

Medium size, streamlined, long range boats similar to those built in the Soviet Union. Equipped with snort. Fitted for minelaying. Assembled from Soviet components in Chinese yards between 1956 and 1964.

4 Ex-Soviet "S" Class

S 400 **S 401** **S 402** **S 403**

Displacement: 780 tons standard, 840 tons (surface), 1,050 tons (submerged)

Dimensions: 256 × 21 × 13 feet

Guns: 1—3.9 inch; 1—45 mm. AA.

Tubes: 6—21 inch

Machinery: Diesels. B.H.P.: 4,200=19 kts. (surface)

Electric motors. H.P.: 2,200=8.5 kts. (submerged)

Oil fuel: 105 tons

Radius: 9,800 miles at 9 kts.

Complement: 50

General

All launched in 1937-40. Particulars of individual boats vary slightly. Transferred from the U.S.S.R. in 1954-55.

Recent Disposals

The four ex-Soviet "Shshuka" class medium type submarines (see particulars in the 1962-63 and earlier editions) were deleted from the list in 1963.

3 Ex-Soviet "M-V" Class

M 201 **M 202** **M 203**

Displacement: 350 tons (surface), 420 tons (submerged)

Dimensions: 167½ × 16 × 12 feet

Guns: 1—45 mm. AA., 1 M.G.

Tubes: 2—21 inch

Machinery: Diesels. B.H.P.: 1,000=13 kts. (surface)

Electric motors. H.P.: 800=10 kts. (submerged)

Oil fuel: 21 tons

Radius: 4,000 miles at 8.5 kts.

Complement: 24

General

Designed for coastal operations, now used for training and instruction. Four were transferred from the U.S.S.R. in 1954-55, but M 200 was deleted from the list in 1963.

Recent Disposals

The two smaller submarines built for coastal operations, one of the ex-Soviet "M IV" class, and one of the ex-Soviet "M I" class, latterly used only for training and instructions, were deleted from the list in 1963.

FLEET MINESWEEPERS

12 Soviet "T 43" Class

Displacement: 410 tons standard (530 tons full load)

Dimensions: 200 × 27½ × 9 feet

Guns: 4—37 mm. AA.

Machinery: Diesels=18 kts.

General

Two were acquired from Russia in 1954-55. Ten more were built in Chinese shipyards, two in 1956, and the remainder since. The construction of "T 43" class fleet minesweepers was terminated at Wuchang, but continued at Canton.

PATROL VESSELS

2 Soviet "S.O.I." Class Submarine Chasers

Displacement: 215 tons

Dimensions: 138 × 20 × 7 feet

Guns: 4—25 mm. (2 twin)

A/S weapons: 4 five-barrelled depth charge mortars

Machinery: Diesels. Speed 28 kts.

General

Two of this class reported to have been transferred from the U.S.S.R. in 1960.

24 Soviet "Kronstadt" Class Submarine Chasers

PC 611 **PC 612** **PC 615** **PC 618** **PC 622**

Displacement: 300 tons

Dimensions: 167½ × 19½ × 9 feet

Guns: 1—3.9 inch; 2—37 mm. AA.; 3—20 mm. AA.

Machinery: Diesels. 2 shafts. Speed 27 kts.

General

Six built in 1950-53 were received from U.S.S.R. in 1956-57. Eighteen were built at Shanghai and Canton, with 12 completed by 1956. The last was assembled in 1957. Flush decked, large squat funnels, slightly raked, massive block bridge structure.

6 Ex-Soviet "Artillerist" Class

Displacement: 240 tons

Dimensions: 160½ × 19 × 8½ feet

Guns: 1—3 inch; 12—37 mm. AA.; 3 M.G.; 2 D.C.T.

Machinery: Diesels. 2 shafts. B.H.P.: 3,300=23 kts.

Patrol Vessels—Continued

I Ex-British "Bathurst" Class

Ex-S.S. CHEUNG HING (ex-H.M.A.S. *Bendigo*)

Displacement: 815 tons standard (1,025 tons full load)

Dimensions: 162 (pp.), 186 (o.a.) × 31 × 8½ feet

Guns: 2—5.1 inch, 2—37 mm. AA.

Machinery: Triple expansion, 2 shafts. I.H.P.: 1,800=15 kts.

Boilers: 2 Admiralty 3-drum small tube type

Oil fuel: 170 tons

Radius: 4,300 miles at 10 kts.

Complement: 85

General

Built as a fleet minesweeper. Launched in Mar. 1941 at Sydney, Australia. Disposed of as surplus after the Second World War. Converted from a merchant vessel by the Chinese Republic and rearmed.

2 Ex-British "Isles" Class

(ex-H.M.S. *Hoxa*) (ex-H.M.S. —)

Displacement: 560 tons standard (770 tons full load)

Dimensions: 150 (pp.), 164 (o.a.) × 27½ × 14 feet

Guns: 1—3 inch, 2—20 mm. AA.

Machinery: Triple expansion, I.H.P.: 850=12.5 kts.

Boilers: 1 Cylindrical

Fuel: 183 tons coal

Complement: 45

General

Former British anti-submarine and minesweeping trawlers. *Hoxa* was built by Cook, Welton & Gemmell, Ltd., in 1941.

(ex-H.M.S. *Bassett*)

Displacement: 461 tons standard (696 tons full load)

Dimensions: 150 (pp.), 160½ (o.a.) × 27½ × 10½ feet

Guns: 1—3 inch, 2—20 mm. AA.

Machinery: Triple expansion, I.H.P.: 850=12 kts.

Boilers: 1 Cylindrical

Fuel: 180 tons coal

Complement: 37

General

Former British trawler. Built by Henry Robb, Ltd., Leith. Launched on 28 Sep. 1935. Above three ships, converted into merchant vessels, were acquired by the Chinese Republic and rearmed.

GUIDED MISSILE PATROL BOATS

I Soviet "Osa" Class

Displacement: 160 tons full load
 Dimensions: 122 (o.a.)×23×6 feet
 Guided weapons: 4 large missile launchers in two pairs abreast aft
 Guns: 4—25 mm. (2 twin)
 Machinery: Speed=40 kts.

General
 It was reported in Jan. 1965 that one "Osa" class guided missile patrol boat had been incorporated in the Navy.

I Soviet "Komar" Class

Displacement: 70 tons full load
 Dimensions: 83 (o.a.)×21×6 feet
 Guided weapons: 2 launchers for missiles
 Guns: 2—25 mm. (1 twin)
 Machinery: Speed=40 kts.

General
 One "Komar" class guided missile boat is reported to have joined the fleet in 1965.

MOTOR GUNBOATS

10 "Shanghai II" Class

General
 Two centreline trainable torpedo tubes abaft the superstructure. Ten boats of this class built with construction continuing at Shanghai at the rate of four to six per year.

12 "Shanghai" Type

Displacement: 100 tons full load
 Dimensions: 120×18×5½ feet
 Guns: 4—37 mm. in twin mountings fore and aft
 Machinery: 4 diesels. B.H.P.: 4,800—28 kts.
 Complement: 21

General
 A new class, the prototype of which appeared in 1959. Quickly convertible type.

44 "Swatow" Type

Displacement: 67 tons full load
 Dimensions: 83½×20×6 feet
 Guns: 4—37 mm. in twin mountings. 2—12.7 mm.
 A/S weapons: 8 depth charges
 Machinery: 4 diesels. B.H.P.: 4,800 40 kts.
 Complement: 17

General
 A new class with "P 6" type motor torpedo boat hulls but with torpedo tubes removed and fitted with twin 37 mm. guns fore and aft, but with some units having only one twin 37 mm. mounting. In 1958 "P-6" hulls were converted to "Swatow" class motor gunboats at Dairen, Canton, and Shanghai.

3 Ex-U.S. Type

Ex-PGM 12 Ex-PGM 14 KAN TANG (ex-PGM 15)
 Displacement: 280 tons standard, 348 tons (trial), 450 tons full load
 Dimensions: 170 (w.l.), 173½ (o.a.)×23×11 (max.) feet
 Guns: 1—3 inch, 50 cal. d.p., 2—40 mm. AA. (twin)
 Machinery: G.M. Diesel. 2 shafts. B.H.P.: 2,800—20 kts.
 Complement: 65

General
 Former U.S. submarine chasers or patrol vessels (motor gunboats).

MOTOR TORPEDO BOATS

70 "P 4" Type

General
 This class have aluminium hulls. (The German-built *Kual 102* was deleted from the list in 1963.)

80 "P 6" Type

General
 This class have wooden hulls. "P-6" class motor torpedo boats are under construction in Chinese Republican yards. All have been built since 1956.

PATROL CRAFT

2 Ex-Japanese Type

Ex-KWANG KUO Ex-HSIEN FENG
 (ex-Japanese No. 223) (ex-Chinese *Koo Ming*, ex-Japanese)
 Displacement: 135 tons
 Dimensions: 96×19×9 feet

General
 S.C. Type. Built in 1941-43. (The ex-British harbour defence motor launches were lost.)

COASTAL MINESWEEPERS

4 Ex-U.S. YMS Type

Ex-YMS 346 Ex-YMS 367 Ex-YMS 393 Ex-YMS 2017
 Displacement: 270 tons standard, (350 tons full load)
 Dimensions: 136×24½×6 feet
 Guns: 1—3 inch, 2—20 mm., 2 D.C.T.
 Machinery: 2 G.M. Diesels. B.H.P.: 1,000—13 kts.
 Complement: 50

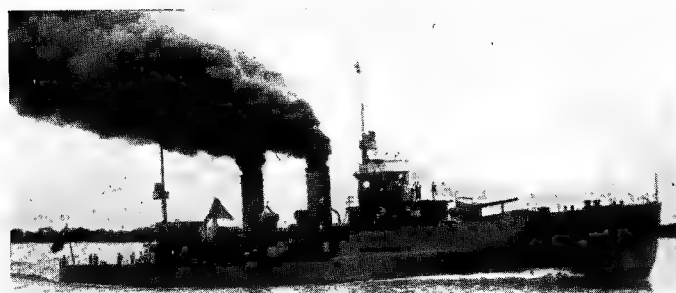
General
 Built of wood in U.S.A. in 1942-43, and transferred to the Chinese Navy in 1948. Some are fitted as minesweepers, others as gunboats. Ex-YMS 339 was deleted from the list in 1963.

2 Ex-Japanese AMS Type

Ex-No. 4 No. 201 (ex-No. 14)
 Displacement: 215 to 222 tons
 Dimensions: 97½ (o.a.)×19½×7½ (max.) feet
 Guns: 1—3.1 inch, 4—25 mm. (No. 201, 1—40 mm., 1—25 mm., 2—13 mm., 3—7.7 mm.)
 Machinery: 1 Diesel. B.H.P.: 300=9.5 kts.
 Radius: 1,700 miles at 9.5 kts.

General
 Ex-Japanese auxiliary minesweepers. Trawler type: No. 201, completed in 1943, was delivered to China at Tsingtau on 3 Oct. 1947, and taken over by the Chinese Republic. Nos. 19 and 22 were taken over by the Nationalists, see later page.

GUNBOATS



YUNG SUI

Added 1957

Ex-YUNG SUI

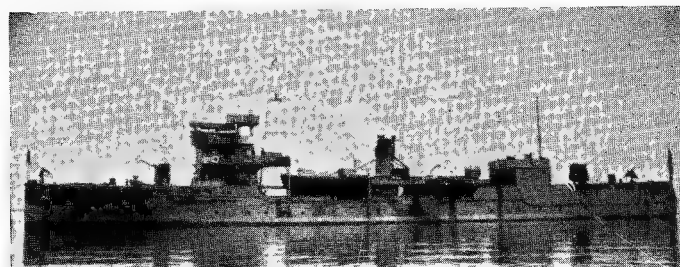
Displacement: 650 tons
 Dimensions: 225×30×6 feet (mean), 7 (max.) feet
 Guns: 1—3 inch AA., 1—40 mm. AA., 4 M.G.
 Machinery: Triple expansion. 2 shafts. I.H.P.: 4,000—12 kts.
 Boilers: 2 Yarrow. Coal fired.
 Complement: 152

General
 Built by Kiangnan Dock Co., Shanghai. Launched in 1929. Salvaged and repaired after sinking in 1949. *Yung Sui* is ex-Chinese Nationalist name.

CH'ANG CHIANG (ex-Ming Chuan)

Displacement: 464 tons
 Dimensions: 176½×26×6 feet (mean), 6½ (max.) feet
 Guns: Only 3 M.G. at present
 Machinery: Triple expansion. 2 shafts. I.H.P.: 2,200—12 kts.
 Boilers: 2 Yarrow
 Coal: 280 tons
 Complement: 119

General
 Built by Kiangnan Dock Co., Shanghai. Launched in 1929.



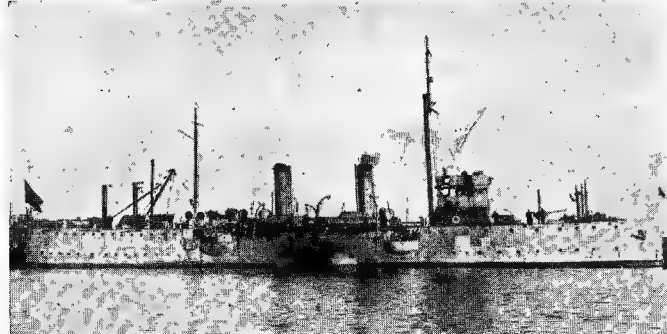
AN TUNG

1947, Official

Ex-AN TUNG (ex-Japanese Ataka, ex-Nakosa)

Displacement: 727 tons
 Dimensions: 222×32×7½ feet
 Guns: 2—3 inch, 5—25 mm., 6 M.G.
 Machinery: Triple expansion. I.H.P.: 1,700=11 to 14 kts.
 Boilers: 2 Kampon

General
 Former Japanese gunboat. Built at Yokohama Dock. Launched in April, 1922. Coal burning.



YEN AN

1947, Official

Ex-YEN AN (ex- Yung Chi, ex-Japanese Asuka, ex-Yung Chi)

Displacement: 860 tons
 Dimensions: 205 (pp.), 215½ (o.a.)×29½×11½ feet (max.)
 Guns: 2—3 inch, 4 M.G.
 Machinery: Triple expansion. 2 shafts. I.H.P.: 1,350=11 kts.
 Boilers: 2 cylindrical
 Coal: 156 tons
 Complement: 143

General
 Built by Kiangnan Dock Co., Shanghai. Launched in 1915. Sunk in 1945 and later salvaged.

Ex-WEI NING

Displacement: 300 tons standard
 Dimensions: 141×22×8 feet
 Guns: 2—2.4 inch, 3 M.G.
 Machinery: Reciprocating. I.H.P.: 600=10 kts.

General
 Built at Shanghai in 1933. Reported sunk in 1949 but believed to have been salvaged.

Gunboats—continued



CHU TUNG

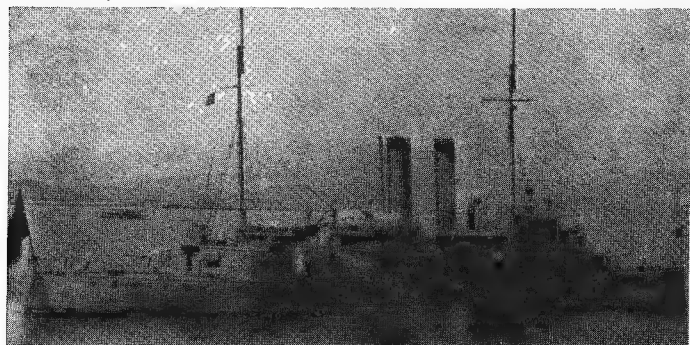
Added 1957

Ex-CHU TUNG

Displacement: 740 tons
 Dimensions: 200 × 30 × 8 feet
 Guns: 2—3 inch, 5—25 mm. AA.
 Machinery: Triple expansion, 2 shafts. I.H.P.: 1,350=11 kts.
 Boilers: Yarrow
 Coal: 150 tons
 Complement: 117

General

Built by Kawasaki Co., Kobe. Launched in 1906. Sister ship of *Chu Kwan* (Nationalist).



CHIANG YUAN

Added 1957

CHIANG YUAN

Displacement: 550 tons
 Dimensions: 170 (pp.), 180 (o.a.) × 28 × 7 feet
 Guns: 1—20 mm. AA.
 Machinery: Triple expansion, 2 shafts. I.H.P.: 4,000=12 kts.
 Boilers: Watertube
 Coal: 113 tons
 Complement: 127

General

Built by Kawasaki Co., Kobe. Launched in 1905. Former armament removed.

TING HSIN

TUNG TEH

Displacement: 500 tons standard
 Guns: 1—3 inch, 4—47 mm.
 Machinery: Speed: 11 to 15 kts. max.
 Fuel: Coal

General

Both captured by the People's Republic of China Navy in 1949.

RIVER GUNBOATS



CHIANG FENG

1947 Official

FU CHIANG (ex-*Chiang Feng*, ex-Chinese *Kiang Shih*, ex-Japanese *Fushima*)
 Ex-CHIANG HSI (ex-Chinese *Nan Chang*, ex-Japanese *Sumida*)

Displacement: 373.6 tons, official Japanese figure, 320 tons standard
 Dimensions: 159½ (pp.), 164 (w.l.), 165 (o.a.) × 32½ × 4½ feet
 Guns: 1—3.1 inch H.A. short cal., 8—25 mm.
 Machinery: 2 geared turbines, 2 shafts. S.H.P.: 2,200=16.7 kts.
 Boilers: 2 Kampon
 Radius: 1,496 miles at 14 kts.
 Complement: 64

General

Both ships were built by Fujinagata Co., Osaka. Launched on 26 March 1939 and 30 October 1939, respectively. Completed on 15 July 1939 and 31 May 1940, respectively. Were the latest river gunboats in the Japanese Navy. *Fushima* bombed and bottomed at Anking on 29 Nov. 1944, was salvaged and towed to Shanghai for repairs and was moored there at the end of the war. *Sumida* was at Shanghai at the end of the war; her armament has been removed for land batteries.

River Gunboats—continued



YUNG PING

1947, Official

Ex-YUNG AN (ex-Futami)

Ex-YUNG PING (ex-Atami)

Displacement: 170 tons
 Dimensions: 148½ × 22 × 4½ feet
 Guns: 1—47 mm. AA., 5—25 mm. AA., 3 M.G.
 Machinery: 2 sets triple expansion, 2 shafts. I.H.P.: 1,200=12 kts.
 Boilers: 2 Kampon
 Oil fuel: 53 tons
 Complement: 77

General

Built by Tama, Fujinagata. Both launched in 1929. Former Japanese river gunboats.

Ex-YING HAO (ex-H.M.S. *Sandpiper*)

Displacement: 185 tons
 Dimensions: 160 × 30½ × 2 (mean) feet
 Guns: 1—3.7 inch howitzer, 9 smaller
 Machinery: 2 sets triple expansion, 2 shafts. I.H.P.: 600=11 kts.
 Boilers: 1, of Admiralty 3-drum type
 Complement: 40

General

Built by John I. Thornycroft & Co. Ltd., Southampton. Launched on 9 June 1933. Presented to Nationalist China by Great Britain in Feb. 1942, and subsequently taken over by the Republicans. Now has mainmast.

Ex-NAN CHIANG (ex-Ying Teh, ex-Lung Huan, ex-H.M.S. *Falcon*)

Displacement: 372 tons
 Dimensions: 150 × 28½ × 5 (mean) feet
 Guns: 1—3.7 inch howitzer, 2—6 pdr., 10 M.G.
 Machinery: Parsons geared turbines. S.H.P.: 2,250=15 kts.
 Boilers: 2, of Admiralty 3-drum type
 Fuel: 84 tons oil
 Complement: 55

General

Built by Yarrow & Co., Ltd., Scotstoun, Glasgow. Launched in 1931. Presented to Nationalist China by the British Government in Feb. 1942, and subsequently taken over by the Republicans.

Ex-YING SHAN (ex-H.M.S. *Gannet*)

Displacement: 310 tons
 Dimensions: 177 (w.l.), 184½ (o.a.) × 29 × 3½ feet
 Guns: 2—3 inch AA., 8 M.G.
 Machinery: Geared turbines. Designed S.H.P.: 2,250=16 kts.
 Boilers: Yarrow
 Fuel: 60 tons oil
 Complement: 55

General

Designed by Yarrow. Built by Yarrow & Co. Ltd., Scotstoun, Glasgow. Launched in 1927. Presented to Nationalist China by Great Britain in Feb. 1942, and subsequently taken over by the Republicans.



TAI YUAN

1947, Official

Ex-MEI YUAN (ex-U.S.S. *Tutulla*) Ex-TAI YUAN (ex-Tatara, ex-U.S.S. *Wake* ex-Guam)

Displacement: 370 tons standard
 Dimensions: 150 (w.l.) × 159½ (o.a.) × 27 × 5½ (mean—fresh water), 6 (max.) feet
 Guns: 2—3 inch, 23 cal., 10 M.G.
 Machinery: Triple expansion. I.H.P.: 1,950=12 kts.
 Oil fuel: 75 tons
 Complement: 70

General

Built by Kiangnan Dock Co., Shanghai. Launched on 14 June and 28 May 1927 respectively. *Mei Yuan* was presented to China by the U.S. Government in March 1942. Sister ship was recovered from Japanese hands and presented to China in 1946.

Ex-CHANG TEH (ex-Seta)

Displacement: 305 tons
 Dimensions: 180 × 27 × 3½ feet
 Guns: 2—3 inch, 6 M.G.
 Machinery: Triple expansion, 2 shafts. I.H.P.: 2,100=14 kts.
 Boilers: 2 Kampon
 Oil fuel: 85 tons
 Complement: 82

General

Japanese prize, built at Harima yard. Launched in 1923. Ex-Japanese *Katada* of the same class may still exist.

River Gunboats—continued

Ex-KIANG KUN (ex-Japanese *Narumi*, ex-Italian *Ermanno Carlotto*)

Displacement: 180 tons standard
Dimensions: 160 × 24½ × 2½ feet
Guns: 2—3 inch, 6 M.G.
Machinery: Designed I.H.P.: 1,100=14 kts. (max.)
Boilers: 2 Yarrow
Oil: 56 tons
Complement: 60

General

Built by Shanghai Dock & Engineering Co. Launched in 1921. Completed in 1921. Shallow draught river gunboat. Twin screws in tunnels.

Ex-FAKU (ex-French *Balny*)

Displacement: 201 tons
Dimensions: 167½, 179 (o.a.) × 23 × 5 feet
Guns: 1—3 inch AA., 2—1 pdr., 4 M.G.
Machinery: Triple expansion. I.H.P.: 920=14 kts.
Boilers: 2 Fouche water tube
Fuel: 45 tons coal
Range: 900 miles at 14 kts.
Complement: 49

General

Built by Chantiers de Bretagne, Nantes. Launched in 1920. Completed in 1921.



HO HSEUH

1947, Official

Ex-HO HSEUH (ex-Chinese *Yang Ch'i*, ex-Japanese *Toba*)

Displacement: 215 tons
Dimensions: 180 × 27 × 2½ feet (mean), 4 feet (max.)
Guns: 3—3 inch, 3—25 mm. AA., 3 M.G.
Machinery: Triple expansion. 2 shafts. I.H.P.: 900=9 kts.
Boilers: 2 Kampon
Coal: 80 tons
Complement: 86

General

Former Japanese shallow draught river gunboat. Built by Sasebo, Japan. Launched in 1911.

Disposal

It is reported that the former Portuguese very shallow draught gunboat ex-*Wu Fang* (ex-Japanese *Maiko*, ex-Portuguese *Macau*) built by Yarrow & Co. Ltd., Scotstoun, Glasgow, in 1909 (see particulars in the 1962-63 and earlier editions) was disposed of in 1963.

BOOM DEFENCE VESSELS

I Ex-British "Bar" Type

Ex-Japanese No. 101 (ex-H.M.S. *Barlight*)

Displacement: 750 tons standard (1,000 tons full load)
Dimensions: 150 (pp.), 173½ (o.a.) × 32½ × 9½ feet
Guns: 1—3 inch d.p., 6 M.G.
Machinery: Triple expansion. I.H.P.: 850=11.75 kts.
Boilers: 2 single-ended
Complement: 32

General

Boom defence vessel of British "Bar" Class. Built by Lobnitz & Co. Ltd., Renfrew. Launched on 10 Sep. 1938. Captured by Japanese in 1941. Acquired by China in 1945.

5 Ex-U.S. "Tree" Class

Displacement: 560 tons standard (805 tons full load)
Dimensions: 146 (w.l.), 163 (o.a.) × 30½ × 11½ feet
Guns: 1—3 inch AA.
Machinery: Diesel-electric. B.H.P.: 800=13 kts.

General

Former United States netlayers of the "Tree" class taken over by the People's Republic.

SURVEY SHIPS

Ex-CHUNG NING (ex-Japanese *Takebu Maru*)

Displacement: 200 tons standard
Dimensions: 115 × 16 × 6 feet
Machinery: Speed: 10 kts.

General

Former Japanese. Employed for hydrographic and general purpose duties.

Ex-FUTING

Displacement: 160 tons standard
Dimensions: 90 × 20 × 8 feet
Machinery: Speed: 11 kts.

REPAIR SHIP

TAKU SHAN (ex-Hsing An, ex-U.S.S. *Achilles*, ARL 41, ex-LST 455)

Displacement: 1,625 tons light (4,100 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.) × 50 × 11 feet
Guns: 1—3 inch, 8—40 mm. AA.
Machinery: Diesel-electric. 2 shafts. B.H.P.: 1,800=11 kts.

General

Launched on 17 Oct. 1942. Burned and grounded in 1949, salvaged and refitted.

LANDING SHIPS

20 Ex-U.S. LST Type

CHANG PAI SHAN
CHING KANG SHAN

Ex-CHUNG 101 (ex-U.S.S. LST 804)
Ex-CHUNG 102 (ex-U.S.S. LST)
Ex-CHUNG 107 (ex-U.S.S. LST 1027)
Ex-CHUNG 110
Ex-CHUNG 111 (ex-LST 805)
Ex-CHUNG 116 (ex-U.S.S. LST 406)

Ex-CHUNG 122 (ex-*Ch'ing Ling*)

Ex-CHUNG 125
I MENG SHAN (ex-*Chung* 106 ex-U.S.S. LST 589)
No. 16
No. 258
TA PIEH SHAN
TAI HSING SHAN
SZU CH'ING SHAN

Displacement: 1,653 tons standard (4,080 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.) × 50 × 14 feet
Machinery: Diesel. 2 shafts. B.H.P.: 1,700=11 kts.
Complement: 80 to 210

General

There are now reported to be 20 ex-U.S. LSTs in naval service and eleven other ex-U.S. LSTs in the merchant service.

13 Ex-U.S. LSM Type

Ex-CHUAN SHIH SHUI

Ex-HUA 201 (ex-U.S.S. LSM 112)
Ex-HUA 202 (ex-U.S.S. LSM 248)
Ex-HUA 204 (ex-U.S.S. LSM 430)
Ex-HUA 205 (ex-U.S.S. LSM 336)
Ex-HUA 207 (ex-U.S.S. LSM 282)
Ex-HUA 208 (ex-U.S.S. LSM 42)

Ex-HUA 209 (ex-U.S.S. LSM 153)

Ex-HUA 211
Ex-HUA 212
Ex-HUAI HO (ex-Chinese *Wan Fu*)
Ex-HUANG HO (ex-Chinese *Mei Sheng*, ex-U.S.S. LSM 433)
Ex-YUN HO (ex-Chinese *Wang Chung*)

Displacement: 743 tons beaching (1,095 tons full load)
Dimensions: 196½ (w.l.), 203½ (o.a.) × 34½ × 8½ feet
Machinery: Diesel. 2 shafts. 2,800=12 kts.
Complement: 60 to 120

General

Built in U.S.A. in 1944-45. Some were converted for minelaying. Armament varies.

LANDING CRAFT

16 Ex-U.S. LSIL Type

Ex-CHU TIEN (ex-Chinese *Lien Kuang*, ex-U.S.S. LCI 517)

Ex-KU CHOU
Ex-U.S.S. LCI 488
Ex-LIEN PI (ex-U.S.S. LCI 514)
MIN 301
MIN 303
MIN 306
MIN 311

MIN 312

MIN 313

MIN 319

MIN 321

MIN 325

MIN 331

Ex-YUNG KAN (ex-Chinese *Lien Yung*, ex-U.S.S. LCI 632)

Displacement: 230 tons light (387 tons full load)
Dimensions: 159 × 23½ × 5½ feet
Machinery: Diesel. 2 shafts. B.H.P.: 1,320=14 kts.
Complement: 30 to 80

General

Built in U.S.A. in 1943-45. Reported to be fitted with rocket launchers. Some are fitted as minesweepers. Armament varies.

10 Ex-U.S. LCU (ex-LCT) Type

Ex-HO CHIEN (ex-U.S.S. LCT 515)

Ex-HO YUNG (ex-U.S.S. LCT 1171)

Displacement: 160 tons light (320 tons full load)
Dimensions: 105 (w.l.), 119 (o.a.) × 33 × 5 feet
Machinery: Diesel. 3 shafts. B.H.P.: 475=10 kts.
Oil fuel: 80 tons

General

Former United States Navy Tank Landing Craft later reclassified as Utility Landing Craft.

There are reported to be ten utility landing craft comprising two of the ex-British LCT (3) class and eight of the ex-U.S. LCT (5) and LCT (6) class.

SUPPLY SHIPS

8 Ex-U.S. Army FS Type

Ex-U.S. Army FS 146 (ex-*Clover*)
Ex-U.S. Army FS 155 (ex-*Violet*)
Ex-TA CHEN (ex-U.S.)

Ex-U.S. Army FS—
Ex-U.S. Army FS—

Displacement: 1,000 tons standard
Dimensions: 175 (o.a.) × 32 × 10 feet
Machinery: General motors diesels. B.H.P.: 1,000=12 kts.

General

Built in U.S.A. in 1944-45. Two are reported to be employed as motor torpedo boat tenders.

TRANSPORT

CHIAO JEN

Displacement: 1,873 tons

General

Formerly a Chinese Nationalist troop transport. Mined on 28 July 1949. Suffered machinery derangement but no hull damage. After survey crew hoisted Communist flag and took her to Canton.

OILERS

General

There are reported to be two ex-U.S. "Mattawee" Class petrol tankers and three ex-U.S. 174 ft. yard oilers of the "YO" type.

TUGS

General

There are reported to be at least two tugs of the U.S.S.R. type, two of the U.S. Navy ATA type, two of the U.S. Army type, and five of the U.S. Army harbour tug type.

There are also reported to be more than 125 armed motor junks and over 100 armed motor launches.

COLOMBIA

Administration

Commandant of the Navy:
Rear Admiral Oriando Lemaitre Torres
Chief of Naval Operations:
(Executive Officer of the Navy):
Rear Admiral Jaime Parra Ramirez

Chief of Naval Staff:
Captain Alfonso Diaz Osorio
Naval Attaché in Washington:
Captain Oscar Herrera Rebolledo.
Ships' names are prefaced by the letters
"A.R.C." (Armada Republica de Colombia)

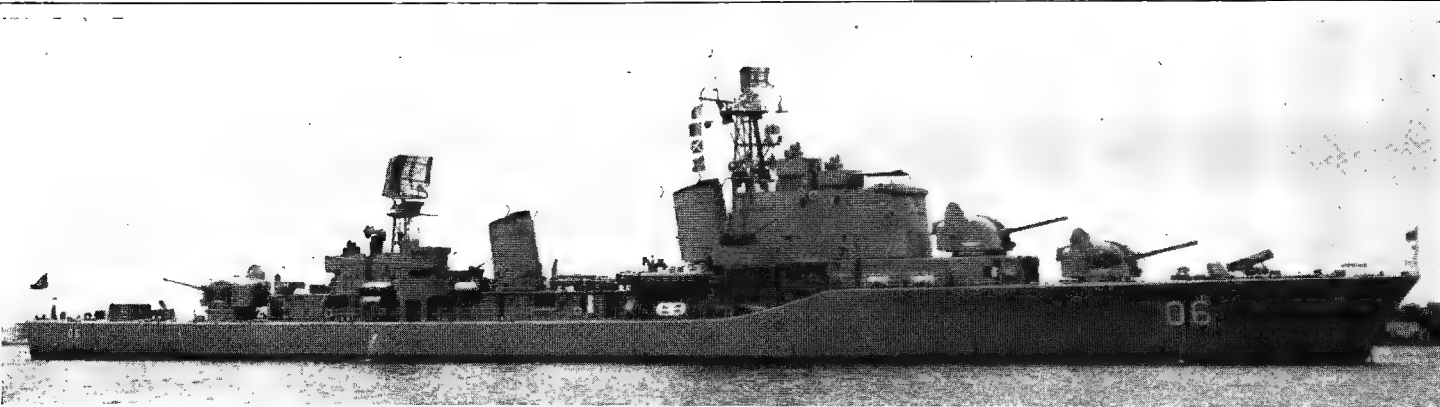
Personnel

1965: 700 officers and 6,300 men

Mercantile Marine

Lloyd's Register of Shipping
37 vessels of 131,930 tons gross

DESTROYERS (Destructores)



1961, Colombian Navy, Official

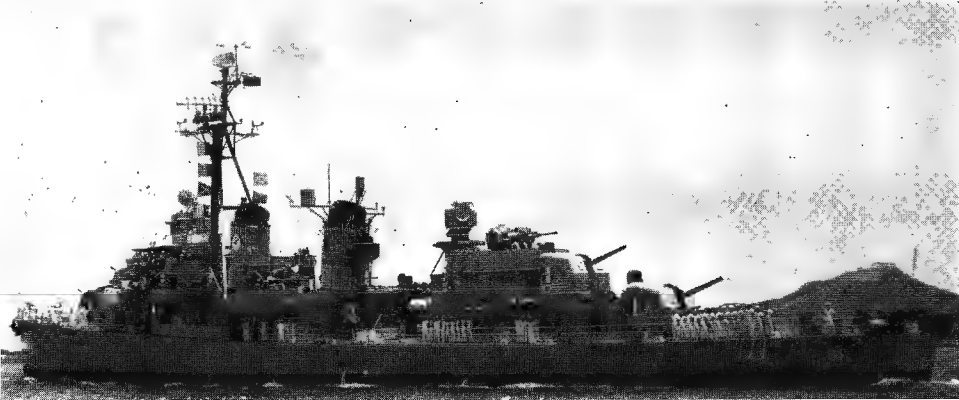
7 DE AGOSTO
2 Modified Swedish "Halland" Type
SIETE DE AGOSTO VEINTE DE JULIO
Name No.Laid down Launched Completed
7 de Agosto 06 Nov. 55 19 June 56 31 Oct. 58
20 de Julio 05 Oct. 55 26 June 56 15 June 58
Photographs
A photograph of 20 de julio appears in the 1958-59
to 1960-61 editions.

Displacement: 2,650 tons standard (3,100 tons full load)
Dimensions: 380½ (pp.), 397½ (o.a.)×40½×12½ feet
Guns: 6—4.7 inch (3 twin turrets), 4—40 mm. AA. (single mounts)
Tubes: 4—21 inch
A/S weapons: 1 quadruple rocket launcher
Machinery: De Laval double reduction geared turbines. 2 shafts. S.H.P.: 55,000 =35 kts.
Boilers: 2 Penhøet. Motala Verkstad
Complement: 260 (20 officers, 240 men)

General
Modified "Halland" type ordered in 1954. Built in Sweden by Götaverken and Kockums respectively. The hull and machinery are similar to the Swedish "Halland" type, but they have different armament (six 4.7 inch instead of four, no 57 mm. guns, four 40 mm. guns instead of six, and four torpedo tubes instead of eight) and different accommodation arrangements. They have an anti-submarine rocket projector, more radar and communication equipment, and air conditioned living spaces, having been designed for the tropics. The change of name from 13 de Junio to 7 de Agosto was decreed by the Colombian Navy in July 1957.

I Ex-U.S. "Fletcher" Type

ANTIOQUIA (ex-U.S.S. Hale, DD 642)
Pennant No.: DD 01
Builders: Bath Iron Works Corporation
Bath, Maine
Laid down: 23 Nov. 1942
Launched: 4 Apr. 1943
Completed: 15 June 1943
Transferred: 1961
Displacement: 2,100 tons standard (3,050 tons full load)
Dimensions: 376½ (o.a.) × 39½ × 12½ (mean), 18 (max.) feet
Guns: 4—5 inch, 38 cal., 6—3 inch, 30 cal., AA.
Tubes: 5—21 inch (quintupled)
A/S weapons: 2 fixed Hedgehogs. 1 D.C. rack, 2 side-launching torpedo racks
Machinery: 2 sets General Electric geared turbines. 2 shafts. S.H.P.: 60,000 =35 kts.
Boilers: 4 Babcock & Wilcox
Oil fuel: 650 tons
Radius: 6,000 miles at 15 kts.
Complement: 300 (peace) 350 (war)
General
Former United States destroyer of the "Fletcher"



ANTIOQUIA

class. Transferred from the U.S. Navy to the Colombian Navy at Boston, Massachusetts, in 1961, and renamed Antioquia.

Disposals
The former destroyer named Antioquia (ex-Portuguese Douro) and her sister ship Caldas (ex-Portuguese Tejo) were scrapped in 1961.

FRIGATES (Fragatas)

"Almirante Padilla" Class

ALMIRANTE BRION (ex-U.S.S. Burlington, PF 51)
Pennant No.: FG 14
Builders: Consolidated Steel Corp., Los Angeles
Laid down: 19 Oct. 1943
Launched: 7 Dec. 1943
Completed: 3 Apr. 1944
Displacement: 1,430 tons standard (2,100 tons full load)
Dimensions: 303×37½×13½ feet
Guns: 3—3 inch, 50 cal.; 6—40 mm. AA.
A/S weapons: Hedgehog, 6 D.C.T., 2 D.C.R.
Machinery: Triple expansion. 2 shafts. I.H.P.: 5,500=20 kts.
Boilers: 2, of 3-drum type
Oil fuel: 645 tons capacity
Radius: 9,500 miles at 12 kts.
Complement: 147 officers and ratings

General
Former United States patrol escort of the "Tacoma" class. Similar to the original British "River" class frigate design. Almirante Brion was acquired from the United States Navy in 1953, and served 14 months in Korean waters.



ALMIRANTE BRION

Photographs
A starboard broadside view of Almirante Brion appears in the 1956-57 to 1962-63 editions.

Disposals
Of this class, Captain Tono, FG 12 (ex-U.S.S. Bisbee), was withdrawn from service in Dec. 1962, and Almirante Padilla, FG 11 (ex-U.S.S. Groton) in Jan. 1965.

DESTROYER TRANSPORT



ALMIRANTE PADILLA

1965, Colombian Navy, Official

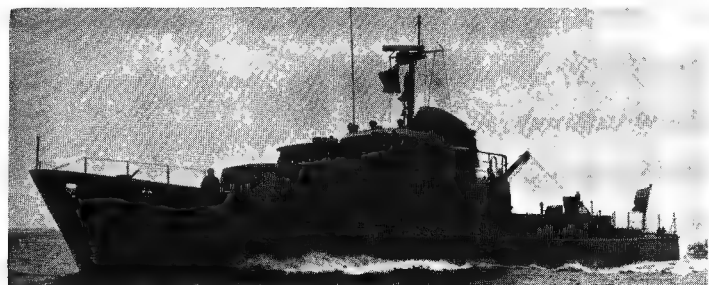
ALMIRANTE PADILLA (ex-U.S.S. Tolland, APD 103, ex-DE 593)

Displacement: 1,400 tons standard (2,130 tons full load)
 Dimensions: 300 (w.l.), 306 (o.a.) \times 37 \times 12 $\frac{1}{2}$ (max.) feet
 Guns: 1—5 inch, 38 cal. d.p.; 6—40 mm. AA.
 Machinery: G.E. turbo-electric. 2 shafts. S.H.P.: 12,000=23.6 kts.
 Boilers: 2 "D" Express
 Oil fuel: 350 tons
 Radius: 5,500 miles at 15 kts.
 Complement: 204 accommodation plus 162 troop capacity

General

Built by Bethlehem S.B. Co., Hingham, Mass. Laid down on 30 Dec. 1943, launched on 12 Feb. 1944, completed on 31 Jan. 1945. Former U.S. high speed transport (converted destroyer escort) transferred in 1965.

COAST GUARD VESSELS



PEDRO GUAL

1965, Colombian Navy, Official

CARLOS E. RESTREPO

ESTEBAN JARAMILLO

PEDRO GUAL

Displacement: 123.5 tons (official figure)
 Dimensions: 107 $\frac{1}{2}$ (pp.) \times 18 \times 6 feet
 Guns: 1—20 mm. Oerlikon AA.
 Machinery: 2 Maybach diesels. B.H.P.: 2,450=26 kts.

General

Built by Werft Gebr. Schürenstedt K. G. Bardenfleth in 1964. Pennant Nos. AN 206, AN 205 and AN 204, respectively.

OLAYA HERRERA

Displacement: 40 tons
 Dimensions: 68 $\frac{1}{2}$ (pp.) \times 12 $\frac{1}{2}$ \times 3 $\frac{1}{2}$ feet
 Guns: 1—50 Browning AA.
 Machinery: 2 Merbans diesels. B.H.P.: 570

General

Built by Astilleros Magdalena, Barranquilla, in 1960. Pennant No. AN 203.

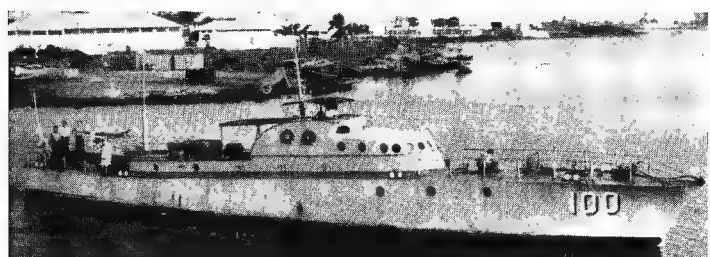
GENERAL RAFAEL REYES

GENERAL VASQUES COBO

Displacement: 146 tons
 Dimensions: 118 (pp.), 124 $\frac{1}{2}$ (o.a.) \times 23 \times 5 feet
 Guns: 1—40 mm.
 Machinery: 2 Maybach diesels. B.H.P.: 2,400=18 kts.

General

Built by Lürssen Werft, Vegesack. Launched on 10 Nov. and 27 Sep. 1955, respectively. Delivered in May 1956. Pennant Nos. AN 01 and AN 02 respectively. Photograph of General Vasques Cobo in the 1957-58 to 1964-65 editions.



ESPARTANA

1964, Colombian Navy, Official

ESPARTANA

Displacement: 50 tons
 Dimensions: 90 (w.l.), 96 (o.a.) \times 13 $\frac{1}{2}$ \times 4 feet
 Guns: 1—20 mm. AA.
 Machinery: 2 Diesels. B.H.P.: 300=13.5 kts.

General

Launched on 22 June 1950 at Cartagena Naval Dockyard. Pennant No. GC 100.

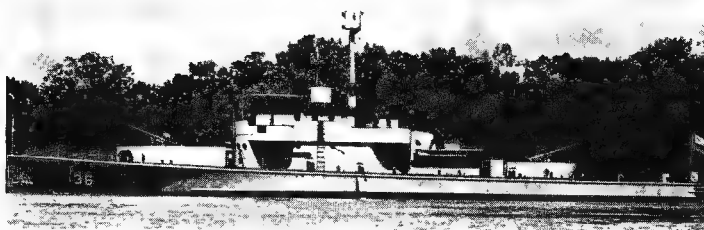
CAPITAN BINNEY

Displacement: 23 tons
 Dimensions: 67 \times 10 $\frac{1}{2}$ \times 3 $\frac{1}{2}$ feet
 Machinery: Diesels. B.H.P.: 115=13 kts.

General

Built at Cartagena in 1947. Buoy and lighthouse inspection boat. Named after first head of Colombian Naval Academy, Lt-Commander Ralph Douglas Binney, R.N. Pennant No. GC 101. Photograph in the 1961-62 to 1964-65 editions.

RIVER GUNBOATS



LETICIA

1961, Colombian Navy, Official

ARAUCA

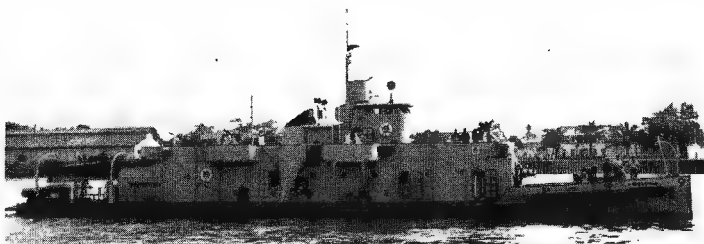
3 "Arauca" Class
LETICIA

RIOHACHA

Displacement: 184 tons
 Dimensions: 163 $\frac{1}{2}$ (o.a.) \times 23 $\frac{1}{2}$ \times 2 $\frac{1}{2}$ feet
 Guns: 2—3 inch, d.p., 50 cal. 4—20 mm.
 Machinery: 2 Caterpillar engines. B.H.P.: 916=13 kts.
 Range: 1,000 miles
 Complement: 43

General

Built by Union Industrial de Barranquilla (Unial) Colombia. Launched in 1955. Completed in 1956. Pennant Nos. CF 37, 36 and 35 respectively. A photograph of Arauca appears in the 1957-58 to 1960-61 editions.



BARRANQUILA

1961, Colombian Navy, Official

BARRANQUILA

2 "Barranquilla" Class

CARTAGENA

Displacement: 142 tons
 Dimensions: 130 (pp.), 137 $\frac{1}{2}$ (o.a.) \times 23 $\frac{1}{2}$ \times 2 $\frac{1}{2}$ (max.) feet
 Guns: 2—3 inch, 1—20 mm. AA., 4 M.G.
 Machinery: 2 Gardner semi-Diesel engines, 2 shafts, working in tunnels. H.P.: 600=15.5 kts.
 Oil fuel: 24 tons
 Complement: 39

General

Both built by Yarrow & Co. Ltd., Scotstoun, Glasgow, and launched on 10 May 1930, and 26 Mar. 1930, respectively. Barranquilla was modernised in Cartagena with new armament, engines, auxiliaries and superstructure. Pennant Nos. CF 31 and 33 respectively. A photograph of Cartagena appears in the 1957-58 to 1960-61 editions.

Disposals

The third vessel of the "Barranquilla" class, Santa Marta, CF 32, was withdrawn from service in Dec. 1962.

The river gunboat Presidente Mosquera was scrapped in 1961.

TENDERS



GORGONA

1963, Colombian Navy, Official

GORGONA

Displacement: 560 tons
 Dimensions: 135 \times 29 $\frac{1}{2}$ \times 9 $\frac{1}{2}$ ft.
 Machinery: 2 Nohab diesels. B.H.P.: 910=13 $\frac{1}{2}$ kts.

General

Built by Astillero Lidingoverken. Launched in May 1954. Pennant No. FB 161. Formerly classified as a tender. Recently employed in the hydrographic service.

RAFAEL MARTINEZ

Displacement: 38 tons
 Dimensions: 56 $\frac{1}{2}$ (pp.), 57 $\frac{1}{2}$ (o.a.) \times 15 \times 8 feet
 Machinery: 2 six-cylinder diesels. B.H.P.: 120

General

A new tender for the Colombian Navy, officially named "S. D. Rafael Martinez".

JAMARY

Displacement: 146 \times 25 $\frac{1}{2}$ \times 8 feet
 Complement: 43

General

Small tender equipped as a naval hospital ship with beds for 80 patients.

There are also Rodriguez Zamora (ex-U.S.N. ARD 28), 6,700 tons full load, 488 $\frac{1}{2}$ (o.a.) \times 81 feet, crew 109, transferred from the United States Navy, officially rated as auxiliary floating dry dock; Capitan Eloy Mantilla (ex-U.S.N. YR 66), 516 tons standard, 150 (o.a.) \times 34 feet, crew 24, transferred from the U.S. Navy, rated as a floating workshop; the floating dock Manuel Lara and the repair boat Victor Cubillos.

PATROL MOTOR LAUNCHES



HUMBERTO CORTES 1965, Colombian Navy, Official

ALBERTO RESTREPO (1 Oct. 1952) HUMBERTO CORTES (26 Nov. 1952)
CARLOS GALINDO (1954) JUAN LUCIO (2 May 1953)

Displacement: 35 tons
Dimensions: 76½ (pp.), 81½ (o.a.) × 12 × 2½ feet
Guns: 1—20 mm. AA., 4 M.G.
Machinery: 2 G.M. diesels. B.H.P.: 260=13 kts.
Complement: 13

General Built at Cartagena Naval Dockyard in 1952-55. Launch dates after the names above. Pennant Nos. LR 125, 128, 126 and 122, respectively. *Guardiamarin*, *Sabalza* and *Teniente Asmussen* were sold in 1961. A photograph of *Alberto Restrepo* appears in the 1957-58 to 1964-65 editions.

ALFONSO VARGAS (3 July 1952) FRITZ HAGALE (19 July 1952)

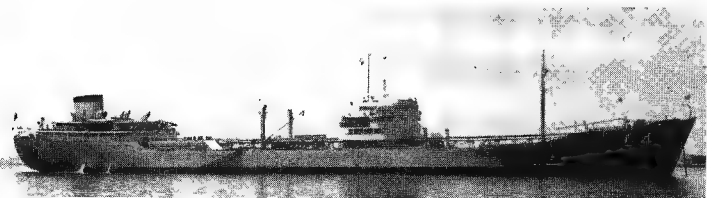
Displacement: 33 tons
Dimensions: 72 (pp.), 76 (o.a.) × 12 × 2½ feet
Guns: 1—20 mm. AA., 4 M.G.
Machinery: 2 G.M. diesels. B.H.P.: 280=13 kts.
Fuel: 3½ tons
Complement: 10

General Built at Cartagena naval base. Designed for operations on rivers. Named after naval officers. Launch dates above. Pennant Nos. LR 123 and 124 respectively. A photograph of *Fritz Hagale* appears in the 1956-57 to 1963-64 editions.

DILIGENTE PALACE TRIUNFANTE VENGADORA
INDEPENDIENTE TORMENTOSA VALEROSA VOLADORA

General Launched at the Naval Base, Cartagena, in 1942-54. The boats vary in detail. Pennant Nos. LR 138, 134, 130, 136, 133, 137, 139 and 135, respectively.

OILERS



ANTONIO DE AREVALO 1963, Colombian Navy, Official

ANTONIO DE AREVALO (ex-*Granland*)
Measurement: 22,682 tons gross, 16,800 tons deadweight.
Dimensions: 549½ × 68 × 30 (max.) feet
Machinery: 1 MAN diesel, type D 8Z70/120, B.H.P.: 6,650=15 kts.

General Fleet oiler. Built by Deutsche Werft, Hamburg, in 1952. Purchased from commercial sources in 1959. Pennant No. BT 64.



MAMONAL 1965, Colombian Navy, Official

MAMONAL

Displacement: 5,984 tons
Measurement: 3,150 tons gross; 3,925 tons deadweight; 2,063 tons net
Dimensions: 325 × 48½ × 21½ (max.) feet
Machinery: Diesel, 1 shaft. B.H.P.: 1,400=10 kts.
Complement: 33

General Fleet oiler. Built by Todd Shipyard, Houston. T-AOG type. Capacity 30,000 barrels.

SANCHO JIMENO (ex-*Transmere*, ex-U.S.S. *Kiamichi*, AOG 73)
Displacement: 1,200 tons light (6,000 tons full load)
Dimensions: 325 × 48 × 19 feet
Machinery: 1 Enterprise engine. B.H.P.: 1,400= 11 kts.
Complement: 35

General Launched in 1943. Purchased in 1952. Pennant No. BT 63.

Disposals The oiler *Cabimas*, formerly used as a receiving ship at Cartagena, was scrapped in 1961. The oiler *Blaz de Lezo*, BT 62 (ex-U.S.S. *Kalamazoo*, AOG 30) was officially deleted from the list in Jan. 1965.

SMALL TRANSPORTS

CIUDAD DE QUIBDO

Displacement: 633 tons
Dimensions: 165 × 23½ feet
Machinery: 1 Mai diesel, 1 shaft. B.H.P.: 390=11 kts.
Oil fuel: 32 tons
Complement: 12

General Built by Gebr. Sander Delfzijl, in the Netherlands. Photograph in the 1957-58 edition. Pennant No. TM 43.

BELL SALTER (ex-*Souris*, ex-*Leccarmaro II*). Pennant No. TM 41.

Displacement: 60 tons
Dimensions: 82 × 14 × 5½ feet
Machinery: 2 General Motors diesels, r.p.m. 1,500. Speed 8 kts.

Recent Disposals The small transport *Ciudad de Pereira*, TM 42, was withdrawn from service in Dec. 1962. The small transport *Quindio* was officially deleted from the effective list in Jan. 1965.

ALBERTO GOMEZ (1954) MARIO SERPA (1953)
HERNANDO GUTIERREZ (1953)

Displacement: 70 tons
Dimensions: 82 × 18 × 2½ feet
Machinery: 2 General Motors diesels. B.H.P.: 260=9 kts.
Oil fuel: 4 tons
Complement: 10 (berths for 56 troops)

General River transports. Built at Cartagena in 1953-54. Named after Army officers. Photograph of *Alberto Gomez* in the 1954-55 to 1957-58 editions. Launch dates above. Nos. TF 53, 52, 51.

Power Hulks The hulls of the fast transports (modified destroyer escorts) *Brock* (APD 93), *Myers* (APD 105) and *Upham* (APD 99) were acquired from the United States Navy in 1962 and converted into power plants.

TUGS

PEDRO DE HEREDIA (ex-U.S.S. *Choctaw*, ATF 70)

Displacement: 1,235 tons standard, 1,764 tons full load
Dimensions: 195 (w.l.), 205 (o.a.) × 38½ × 15½ (max.) feet
Machinery: 4 diesels, electrical drive. B.H.P.: 3,000=16.5 kts.
Radius: 19,000 miles

Former United States ocean tug of the "Apache" class. Launched on 18 Oct. 1942. Pennant No. RM 72.

TENIENTE SORZANO
Displacement: 54 tons
Dimensions: 60 (pp.), 65½ (o.a.) × 17½ × 9 feet
Machinery: 6-cylinder diesel. B.H.P.: 240

ANDAGOYA
Displacement: 100 tons
Machinery: Caterpillar diesel. B.H.P.: 80=8 kts.

General Launched in 1928. Re-engined in 1955. Pennant No. RM 71. Photograph in 1957-58 edition.

ABADIA MENDEZ
Displacement: 39 tons
Dimensions: 52½ × 11 × 4 feet
Machinery: Caterpillar diesel. B.H.P.: 80=8 kts.

General Built in Germany in 1924. Harbour tug. There is also the harbour tug *La Colombiana*.

CANDIDO LEGUIZAMO
CAPITAN HERNANDO BOCANEGRA
CAPITAN ALVARO RUIZ
CAPITAN CASTRO
CAPITAN RIGOBERTO GIRALDO
CAPITAN JULIO PATINO
CAPITAN VLADIMIR VALEK
TENIENTE LUIS BERNAL

Displacement: 50 tons
Dimensions: 63 × 14 × 2½ feet
Machinery: 2 G.M. diesels, B.H.P.: 260=9 kts.

TENIENTE MIGUEL SILVA
Displacement: 73½ × 17½ feet
Machinery: 2 diesels. B.H.P.: 260=9 kts.
Radius: 2,200 miles

General River tug. Built by Union Industrial (Unial) of Barranquilla. Pennant No. 89. There is also the river tug *Javes Fiallo*. Pennant No. RR 90. Mayor *Ehnesto Rojas* was sold, and the river tug *Coronel Mora Angueyra* was scrapped in 1961.

COMMONWEALTH

Commonwealth Naval Forces are:—
AUSTRALIA, CANADA, CEYLON, FIJI, GHANA, HONG KONG, INDIA, JAMAICA, KENYA, MALAYSIA, MAURITIUS, NEW ZEALAND, NIGERIA, PAKISTAN, SIERRA LEONE, TRINIDAD AND TOBAGO, UNITED KINGDOM

CONGO

The Republic of Congo (formerly Middle Congo, of French Equatorial Africa), which became independent on 15 Aug. 1960, has formed a naval service.

PATROL BOAT

REINE N'GALIFOUROU (ex-VC 4 (P 754)
Displacement: 75 tons standard (82 tons full load)
Dimensions: 104½ × 15½ × 5½ feet
Guns: 2—20 mm. AA.
Machinery: 2 Mercedes-Benz diesels. 2 shafts. B.H.P.: 2,700=28 kts.

General Former French vedette of the VC type; built by Constructions Mécaniques de Normandie, Cherbourg; launched on 17 Aug. 1957; purchased from France on 16 Nov. 1962.

COSTA RICA

The Coast Guard includes two 90-ft. wooden patrol boats and an armed tug.

CUBA

Administration

Commander-in-Chief of the Navy:
Captain R. Castiñeiras.

Personnel

1965: 6,000 (600 officers and 5,400 men)

Naval Establishments

Naval Academy: At Mariel, for training officers.

Naval School: At Morro Castle, Havana, for training enlisted personnel.

Mercantile Marine

Lloyd's Register of Shipping:
53 vessels of 134,592 tons gross

FRIGATES (Fragatas)

I Rated as Cruiser (Crucero)

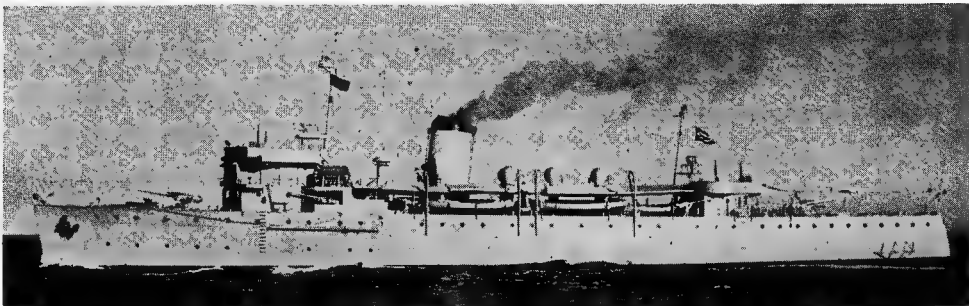
CUBA

Builders: Cramp, Philadelphia
Launched: 10 Aug. 1911

Displacement: 2,055 tons
Dimensions: 260 (pp.) x 39 x 14 feet
Guns: 2—4 inch, 2—3 inch, 4—57 mm., 5—20 mm. AA., 2 D.C.T.
Machinery: Triple expansion. I.H.P.: 6,000
=14 kts.
Boilers: 2 Foster Wheeler 3-drum type

General

Reconstructed in 1936-37. Converted from coal to oil burning. Completed further reconstruction and modernisation in 1956, when hull and machinery were overhauled, bridge rear constructed, tripod mast suppressed and replaced by a pole mast, radar equipment installed, funnel cap altered and height of masts reduced.



CUBA

Added 1964, Cuban Navy, Official

Name

Pennant No.

Builders

Laid down

Launched

Completed

ANTONIO MACEO (ex-U.S.S. Peoria, PF 67)

F 302

Leathem D. Smith, S.B. Co., Sturgeon Bay, Wisconsin

4 June 1943

2 Oct. 1943

15 Oct. 1944

JOSE MARTI (ex-U.S.S. Eugene, PF 40)

F 301

Consolidated Steel, Los Angeles, California

12 June 1943

6 July 1943

15 Jan. 1944

MAXIMO GÓMEZ (ex-U.S.S. Grand Island, PF 14)

F 303

Kaiser Cargo Inc., Richmond, California

27 Nov. 1943

19 Feb. 1944

27 May 1944

3 Ex-U.S. PF Type

Displacement: 1,430 tons standard (2,415 tons full load)
Dimensions: 285½ (w.l.), 304 (o.a.) x 37½ x 13½ feet
Guns: 3—3 inch d.p., 4—40 mm. AA. (all three) in addition José Martí has 6—20 mm. AA., Maximo Gómez 9—20 mm. AA., and Antonio Maceo 4—12.7 mm. AA.
A/S weapons: Hedgehog, D.C.T. and racks.
Machinery: Triple expansion. 2 shafts.
Boilers: I.H.P.: 5,500=18 kts.
Complement: 2 of 3-drum type
135 (José Martí)

General

Acquired from the United States Navy in 1947. José Martí fitted as flagship. Refitted in 1956 at Key West.

Photographs of José Martí and Maximo Gómez appear in the 1954-55 to 1959-60 editions.



ANTONIO MACEO

1960, Cuban Navy, Official

PATROL ESCORTS (Buques de Patrulla y Escolta)



CARIBE

Cuban Navy, Official

2 Ex-U.S. PCE Type Escort Patrol Vessels

Name:	CARIBE (ex-U.S.S. PCE 872)	SIBONEY (ex-U.S.S. PCE 893)
Pennant No.:	PE 201	PE 302
Builders:	Albina Eng. & Mach. Works, Portland, Oreg.	Williamette Iron & Steel Corp., Portland, Oreg.
Laid down:	30 Jan. 1943	27 Oct. 1942
Launched:	24 Mar. 1943	8 May 1943
Completed:	29 Nov. 1943	25 July 1944

Displacement: 640 tons standard (903 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.) x 33 x 9½ feet
Guns: 1—3 inch d.p., 3—40 mm. AA., 4—20 mm. AA.
A/S weapons: Hedgehog, D.C.T. and racks
Machinery: 12 cylinder diesels, 2 shafts. B.H.P.: 1,800=14 kts.
Complement: 99

General

Built in U.S.A. Former United States escort patrol vessels. Box deck-house amidships was removed from Caribe in 1953. Both completed a refit in 1956 at Key West Naval Base, when new anti-submarine armament and equipment were installed.

Disposal: The old sloop Patria, at Mariel as a permanent installation of the Naval Academy for training midshipmen, has been removed from the effective list.

Losses:

The patrol vessel Balre (ex-Tribesman, ex-U.S.S. PC 790) former United States submarine chaser, sank at her dock at the Isle of Pines, Cuba, on 17 Apr. 1961, during the revolution. She was either scuttled by her crew or sunk by aircraft.

A Soviet-built Cuban torpedo boat was destroyed by underwater mine off the Isle of Pines by an anti-Government group in Dec. 1963.

PATROL VESSELS

6 Ex-U.S.S.R. "S.O.I." Type Submarine Chasers

Displacement: 215 tons
Dimensions: 147½ x 18 x 6½ feet
Guns: 4—25 mm. (2 twin)
A/S weapons: 4 five-barrelled rocket launchers
Machinery: 3 diesels. B.H.P.: 3,500=26 kts.

General

The last of six boats was transferred from the U.S.S.R. in Sep. 1964.

6 Ex-U.S.S.R. "Kronstadt" Type Submarine Chasers

Displacement: 300 tons standard (350 tons full load)
Dimensions: 167½ x 19½ x 9 feet
Guns: 1—3.9 inch, 2—37 mm. AA., 3—20 mm. AA., D.C.
Mines: 6 on two racks at the stern
Machinery: 2 diesels, 2 shafts. Speed=22 kts.

General

Former Soviet submarine chasers reported transferred from the U.S.S.R. in 1962.

MOTOR GUNBOATS

12 Ex-U.S.S.R. "Komar" Type Guided Missile Boats

Displacement: 75 tons standard (100 tons full load)
Dimensions: 88 (o.a.) x 21 x 6 feet
Guided weapons: 2 launchers for missiles of 10 to 15 miles range
Machinery: Speed=40 kts.

General

Former Soviet motor gunboats reported transferred from the U.S.S.R. in 1962.

MOTOR TORPEDO BOATS

12 Ex-U.S.S.R. "P 6" Type

Displacement: 75 tons standard (100 tons full load)
Dimensions: 88 x 21 x 6 feet
Guns: 4—25 mm. AA. (two twin)
Tubes: 2—21 inch (two single)
Machinery: Speed=45 kts.

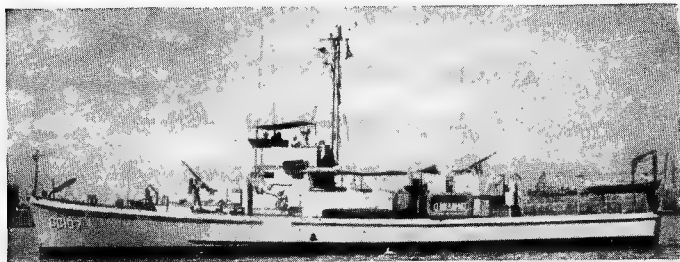
12 Ex-U.S.S.R. "P 4" Type

Displacement: 50 tons
Dimensions: 85½ x 20 x 6 feet
Guns: 4—25 mm. AA. (2 twin)
Machinery: Diesels. B.H.P.: 2,000=42 kts.

General

Former Soviet motor torpedo boats, transferred from the U.S.S.R. in 1962-64.

COAST GUARD CUTTERS (Guardacostas)



HABANA

1954, Official

HABANA GC 107 (ex-SC 1291) ORIENTE GC 104 (ex-SC 1000)
LAS VILLAS GC 106 (ex-SC 1290) PINAR DEL RIO GC 108 (ex-SC 1301)

Displacement: 95 tons
Dimensions: 107½ (w.l.), 111 (o.a.)×17×6½ feet
Guns: 2—20 mm. AA.
Machinery: G.M. diesels. 2 shafts. B.H.P.: 1,000=15 kts.

General
Built in the United States by Dingle Boat Works (Oriente), W. A. Robinson, Inc., Ipswich, Mass. (Havana and Las Villas), and Perkins & Vaughan, Inc., Wickford, R.I. (Pinar del Rio). Camaguey GC 105, was removed from the effective list in 1960.



LEONCIO PRADO

1960, Cuban Navy, Official

LEONCIO PRADO GC 101

Displacement: 80 tons
Dimensions: 110×17½×6½ feet
Guns: 1—20 mm. AA.
Machinery: 2 sets 8-cycle, 2-stroke diesels. B.H.P.: 1,000=15 kts.
Oil: 2,232 gallons for a cruising radius of 16,000 miles

Construction
Built at Havana. Launched in 1946. Of wooden hulled construction.



GC 13

1951, Official

GC 11

GC 13

GC 14

Displacement: 45 tons
Dimensions: 83×16×4½ feet
Guns: 1—20 mm. AA. Depth charges
Machinery: 2 Sterling Viking petrol motors. H.P.: 1,200=18 kts.
Complement: 12

General
Former CS of same numbers. Built in the United States. Launched in 1942-43. Ex-United States Coast Guard Cutters 83351, 83385, 83395, respectively. Of wooden construction. Received from U.S. Navy in March 1943. Rated as Guardacostas, 83 ft. GC 12 and GC 31 have been removed from the effective list.

GC 32

GC 33

GC34

Displacement: 45 tons
Dimensions: 83×16×4½ feet
Guns: 1—20 mm. AA.
Machinery: 2 Superior diesels. B.H.P.: 460=12 kts.
Complement: 12

General
Built in the United States. Launched in 1942-43. Ex-United States Coast Guard Cutters 56191, 56190. Of wooden construction. A photograph of GC 32 appears in the 1955-56 to 1959-60 editions. GC 31 has been removed from the effective list.

AUXILIARY COAST GUARD CUTTERS

DONATIVO GC 102 (ex-Capitan Fernandez Quevedo)

Displacement: 130 tons
Dimensions: 101×18×7 feet
Machinery: 2 sets diesels. B.H.P.: 360=12 kts.

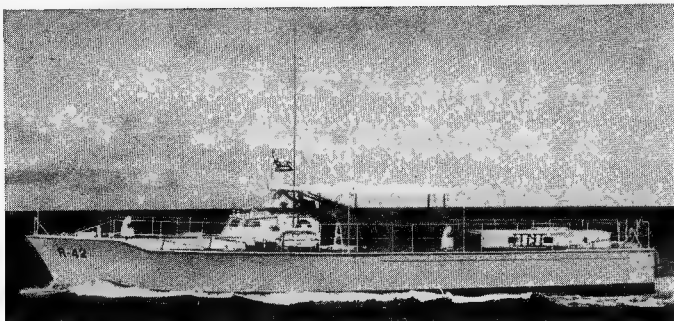
General
Built at Havana. Launched in 1932. A photograph appears in the 1947-48 to 1959-60 editions.

MATANZAS GC 103

Displacement: 80 tons
Dimensions: 100×18×6 feet
Guns: 1—1 pdr.
Machinery: 2 Fairbanks Morse diesels. B.H.P.: 180=12 kts.

General
Wooden hulled. Built at Havana. Launched in 1912. A photograph appears in the 1947-48 to 1959-60 editions. Both of the above ships are rated as Guardacostas Auxiliares.

MOTOR LAUNCHES (Ex-M.T.B.s)



R 42

1955, Official

R 41 (ex-PT 715)

R 42 (ex-PT 716)

Displacement: 35 tons
Dimensions: 71×19½×5 feet
Guns: 2 M.G.
Machinery: 3 Packard petrol engines. 3 shafts. B.H.P.: 3,600=35 kts.

General
Former United States motor torpedo boats of the PT type. Built in the U.S.A. by Annapolis Yacht Yard, Inc., Annapolis, Md. Launched on 9 July 1945 (R 41) and 17 July 1945 (R 42). Sunk during a hurricane 5 Oct. 1948, but were subsequently salvaged and put into service as sea-air rescue craft. All rated as Buques-Auxiliares, ex-Torpederos. Sister boat R 43 sank on 6 May 1961 after hitting a submerged object off Western Cuba.

AUXILIARY PATROL CRAFT

SV 7	SV 8	SV 9	SV 10	SV 12	SV 14
Dimensions:	Length 40 feet				
Guns:	1—50 cal. M.G.				
Machinery:	2 G.M. diesels	Speed 25 kts.			

General
Later boats of the SV type assigned to naval stations for coastal vigilance, to deal with contraband, and for auxiliary services, rescue and navigation. Equipped with radar.

SV 1	SV 2	SV 3	SV 4	SV 5	SV 6
Displacement:	6.15 tons				
Dimensions:	32×10×2½ feet				
Machinery:	2 Chrysler Crown.	B.H.P.: 230=18 kts.			

General
Auxiliary patrol boats for port vigilance, launched in 1953. A photograph of SV 6 appears in the 1957-58 edition.
Seven YP type patrol craft were delivered to Cuba, having been built at Annapolis, Maryland, U.S.A., during 1956. Three more were delivered later.
New Construction
It was officially stated in 1960 that plans had been made to acquire twelve new gas turbine-diesel motor coastguard cutters, two new lighthouse tenders and 15 auxiliary patrol craft of the SV 1 and SV 7 types.

LIGHTHOUSE TENDERS

ENRIQUE COLLAZO (ex-Joaquin Godoy)

Displacement: 815 tons
Dimensions: 211×34×9 feet
Machinery: Triple expansion. 2 shafts. I.H.P.: 672=8 kts.

General
Built at Paisley, Scotland. Launched in 1906. Acquired in 1950 from Cuban mercantile marine. Rated as Buque de Servicio de Faros. A photograph appears in the 1953-54 to 1957-58 editions.

BERTHA

Displacement: 98 tons
Dimensions: 104×19×11 feet
Machinery: 2 Gray Marine diesels. B.H.P.: 450=10 kts.

General
Launched in 1944. Pennant No. SF 10. A photograph appears in the 1957-58 edition.
Disposal
The very old surveying vessel Yaro (ex-Ruperto Rodriguez) was removed from the list.

AUXILIARY VESSELS (Buques-Auxiliares)

GRANMA

General
Yacht which landed in Cuba on 2 Dec. 1956 with Dr. Fidel Castro and the men who began the liberation war. Historical vessel incorporated into the Navy as an auxiliary vessel with the Pennant No. A 11.
The former Presidential Yacht 10 de Marzo (ex-Waklitty) was removed from the list.

A1

A2

A3

Displacement: 60 tons
Dimensions: 74×15×5 feet
Guns: 1 M.G.
Machinery: 2 diesel engines

General
Formerly yachts. A photograph of A3 appears in the 1954-55 to 1957-58 editions.

RESCUE AND SALVAGE VESSEL (Buque de Rescate y Salvamento)

10 DE OCTUBRE (ex-ATR 4)

Displacement: 852 tons standard (1,315 tons full load)
Dimensions: 155 (w.l.), 165½ (o.a.)×33½×16 feet
Machinery: Triple expansion. I.H.P.: 1,600=12 kts.
Boilers: 2 Babcock & Wilcox D-type. Oil burning

General
Former United States ocean rescue tug. Built in the United States. Launched in 1943. Largely of wooden construction. Guns removed. Pennant No. RS 210. Rated as Buque de Rescate y Salvamento. Sister ship 20 de Mayo was removed from the effective list.

DENMARK

Administration

Commander-in-Chief:
Vice-Admiral S. E. Pontoppidan, K.C.V.O.
O.B.E., R.D.N.

Chief of Naval Staff:
Rear-Admiral S. S. Thostrup, R.D.N.

Naval Attaché, London:
Lt. Colonel E. B. Meincke, R.D.A.F.

Naval Attaché, Washington:
Rear-Admiral S. J. Valentiner, R.D.N.

Navy Estimates

1961-62: Kr. 177,100,000 1963-64: Kr. 231,000,000
1962-63: Kr. 210,100,000 1964-65: Kr. 279,100,000

Personnel

January 1965: 7,200 officers and men

Mercantile Marine

Lloyd's Register of Shipping:
901 vessels of 2,431,020 tons gross

FAST FRIGATES

2 New Construction FF (ex-DE) Type
"Peder Skram" Class

Name: HERLUF TROLLE PEDER SKRAM
Pennant No.: F 353 F 352
Builders: Helsingörs J. & M. Helsingörs J. & M.
Laid down: 18 Dec. 1964 25 Sep. 1964
Displacement: circa 2,200 tons standard
Dimensions: 364×36×14 feet
Guns: 4—5.1 inch, 4—40 mm. AA.
Tubes: 3—21 inch
A/S weapons: Terne
Machinery: 2 diesels, B.H.P.: 4,800 and
2 gas turbines, B.H.P.: 37,000.
2 shafts. Speed=28 kts.

Construction
Fast frigates of Danish design under construction at Helsingör.
Pennant Nos.
The pennant numbers allocated originally were D 320 (see illustration) and D 321, when they were designated DE (Destroyer Escorts).



PEDER SKRAM

1963, Royal Danish Navy, Official

FRIGATES

4 "Hvidbjørnen" Class
FF Type

Displacement: 1,345 tons standard (1,650 tons full load)
Dimensions: 239½×37½×15½ feet
Guns: 1—3 inch dual purpose
Aircraft: 1 Alouette III helicopter
Machinery: 4 diesels, 1 shaft. B.H.P.: 6,400
=18 kts.
Radius: 6,000 miles at 13 kts.
Complement: 85 officers and ratings

General
Ordered in 1960-61. Of frigate type for fishery protection and surveying duties in the North Sea, Faroe Islands, and Greenland waters. They are equipped with a helicopter platform aft. The prototype ship of the class was built by Aarhus Flydedok og maskinkompagni.

Photographs
A starboard bow view of Hvidbjørnen appears in the 1963-64 edition.

Disposals of "River" Class
Of the two former British frigates of the "River" class, Niels Ebbesen (ex-H.M.S. Annan) was scrapped in 1963, and Holger Danske (ex-H.M.S. Monnow) in 1959.



INGOLF

1964, Royal Danish Navy, Official

Name	Pennant No.	Builders	Laid down	Launched	Completed
FYLLA	F 351	Aalborg Vaerft	27 June 1962	18 Dec. 1962	10 July 1963
HVIDBJØRNEN	F 348	Aarhus Flydedok	4 June 1961	23 Nov. 1961	15 Dec. 1962
INGOLF	F 350	Svendborg Vaerft	5 Dec. 1961	27 July 1961	27 July 1963
YÆDDEREN	F 349	Aalborg Vaerft	30 Oct. 1961	6 Apr. 1962	19 Mar. 1963

1 Ex-British "Hunt II" Class Escort

ESBERN SNARE (ex-H.M.S. Blackmore)

Pennant No.: F 341
Builders: Alex. Stephen & Sons, Ltd., Glasgow.
Laid down: 10 Feb. 1941
Launched: 2 Dec. 1941
Completed: 14 Apr. 1942
Displacement: 1,260 tons standard (1,560 tons full load)
Dimensions: 280 (o.a.)×31½×14 (max.) feet
Guns: 6—4 inch AA., 4—40 mm. AA.
Machinery: Parsons geared turbines. 2 shafts.
S.H.P.: 19,000=23 kts.
Boilers: 2, of 3-drum type
Complement: 150

General
Lent by Great Britain in 1953 for 4 years, but the loan was subsequently extended. Reconstructed in 1953-54.

Disposals
Two sister ships, Rolf Krake (ex-H.M.S. Calpe) and Valdemar Sejre (ex-H.M.S. Exmoor) were declared for disposal in 1963.



ESBERN SNARE

1963, Wright & Logan

Disposal of "Flower" Class
The former British frigate of the "Flower" class, Thetis (ex-H.M.S. Geranium) was discarded in 1963.

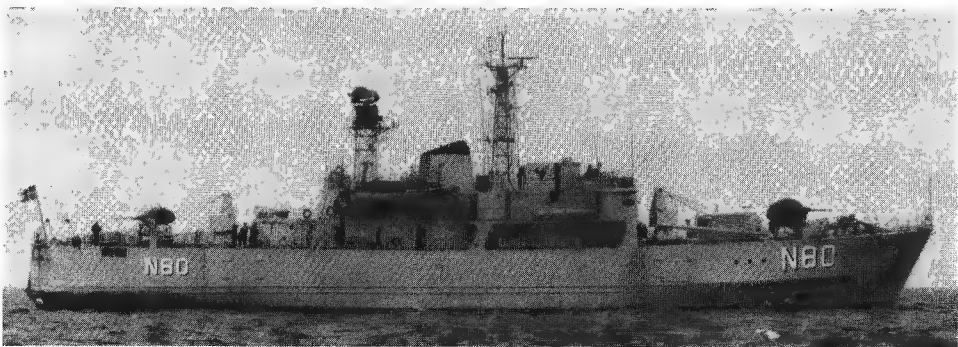
MINELAYERS

4 "Falster" Class
MMC Type

Displacement: 1,800 tons standard
Dimensions: 246 (pp.), 252½ (o.a.)×41×10 feet
Guns: 4—3 inch dual purpose (2 twin mountings)
Mines: 400
Machinery: 2 diesels, 2 shafts, B.H.P.: 4,800
Complement: 120 (officially revised figure)

General
New minelayers of a novel Scandinavian-NATO design. Ordered in 1960-61. All are named after Danish Islands.

Construction
The steel hull is flush decked with a raking stem, a full stern, and a prominent knuckle forward. The superstructure has a block outline surmounted by a squat streamlined funnel, two light lattice masts, high angle director control towers fore and aft and whip aerials. The hull is sub-divided by watertight bulkheads and flats to isolate damage, and has been specially strengthened for ice navigation.



FALSTER						1964, Royal Danish Navy, Official		
Name	Pennant No.	Builders	Laid down	Launched	Completed			
FALSTER	N 80	Nakskov Skibsværft	12 Apr. 1962	19 Sep. 1962	7 Nov. 1963			
FYEN	N 81	Frederikshavn Værft	12 Apr. 1962	3 Oct. 1962	18 Sep. 1963			
MØEN	N 82	Frederikshavn Værft	4 Oct. 1962	6 Mar. 1963	29 Apr. 1964			
SJÆLLAND	N 83	Nakskov Skibsværft	17 Jan. 1963	14 June 1963	7 July 1964			

CORVETTES

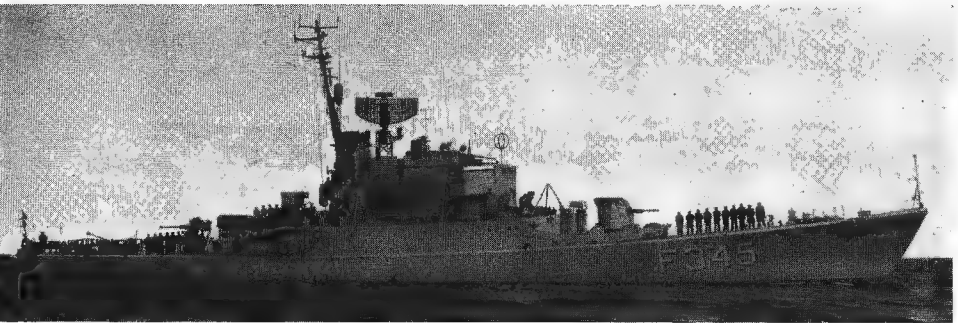
4 "Triton" Class

Displacement: 760 tons standard (873 tons full load)
Dimensions: 249½ (o.a.)×315×9 feet
Guns: 2—3 inch, 1—40 mm. AA.
A/S weapons: 2 hedgehogs, 4 depth charge throwers
Machinery: Fiat diesels, 2 shafts, B.H.P.: 4,400=20 kts.
Oil fuel: 100 tons
Radius: 2,400 miles at 18 kts.
Complement: 110

Construction
All four vessels were built in Italy for the Danish Navy under the United States "offshore" account in the Mutual Defense Assistance Program.

Classification
Officially classified as corvettes in 1954, but have "F" pennant numbers like frigates.

Photographs
A photograph of Triton appears in the 1956-57 to 1962-63 editions.



DIANA						1963, Royal Danish Navy, Official		
Name	Pennant No.	Builders	Laid down	Launched	Completed			
BELLONA	F 344	Naval Meccanica, Castellammare		9 Jan. 1955	31 Jan. 1957			
DIANA	F 345	Cantiere del Tirreno, Riva, Trigoso		19 Dec. 1954	30 July 1955			
FLORA	F 346	Cantiere del Tirreno, Riva, Trigoso		25 June 1955	28 Aug. 1956			
TRITON	F 347	Cantiere Navali di Taranto		12 Sep. 1954	10 Aug. 1955			

SUBMARINES

2 New Construction
German "U 4" Class

S 330 S 331

Displacement: 370 tons surface (450 tons submerged)
Dimensions: 144½ (o.a.)×15 feet
Tubes: 8—21 inch bow, internal
Machinery: Diesels, Electric motors, H.P.: 1,200=17 kts. submerged
Complement: 21 officers and ratings

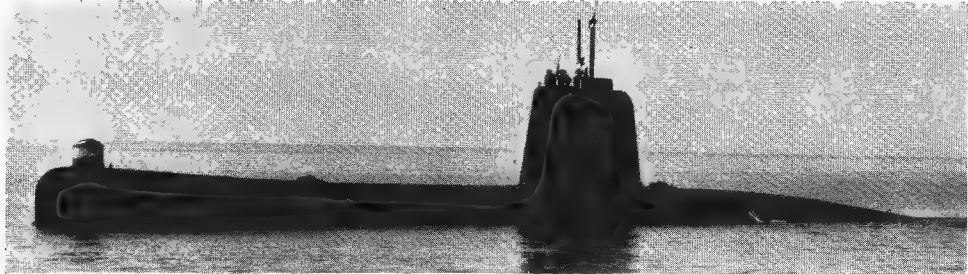
Construction
These coastal submarines are similar to the German "U-4" class and are being built under licence at the Royal Dockyard, Copenhagen. They are conventionally powered, and fitted with schnorkel installation. "Tear-drop" hull.

4 "Delfinen" Class

Name	Pennant No.	Laid down	Launched
DELFINEN	S 326	1 July 54	4 May 56
SPEKHUGGEREN	S 327	1 Dec. 54	20 Feb. 57
SPRINGEREN	S 329	3 Jan. 61	26 Apr. 63
TUMLEREN	S 328	22 May 56	22 May 58

Displacement: 550 tons standard, 595 tons surface
Dimensions: 177×15½×15 feet
Tubes: 4—21 inch
Machinery: 2 Burmeister & Wain diesels, B.H.P.: 1,200=13 knots surface, Electric motors=12 kts. submerged
Radius: 4,000 miles at 8½ kts.
Complement: 30

Construction
Built in the Royal Dockyard, Copenhagen. Engineed with diesels of a new type. Equipped with Schnorkel



SPEKHUGGEREN		1964, Royal Danish Navy, Official	
Commissioned:	Delfinen 16 Sep. 1958, Spekhuggeren 27 June 1959, Tumleren 15 Jan. 1960, Springereren 22 Oct. 1964.	Photographs	Photographs of Delfinen appear in the 1957-58 to 1963-64 editions.

PATROL VESSEL (ex-Coastal Destroyer)

1 "Huitfeldt" Class

WILLEMOES (ex-Najaden)

Pennant No.: P 521
Builders: Royal Dockyard, Copenhagen
Laid down: 3 July 1942
Launched: 17 Mar. 1943
Completed: 30 June 1947
Displacement: 782 tons standard (890 tons full load)
Dimensions: 283 (o.a.), 279 (pp.)×27½×11½ feet
Guns: 2—4.1 inch, 3—40 mm. AA.
Tubes: 6—21 inch, 2 D.C.T.
Machinery: Geared turbines, 2 shafts, S.H.P.: 21,000=35 kts.
Complement: 92

Classification
Originally known as Torpedo Boat. Reclassified as Coastal Destroyer in 1951 and again reclassified as

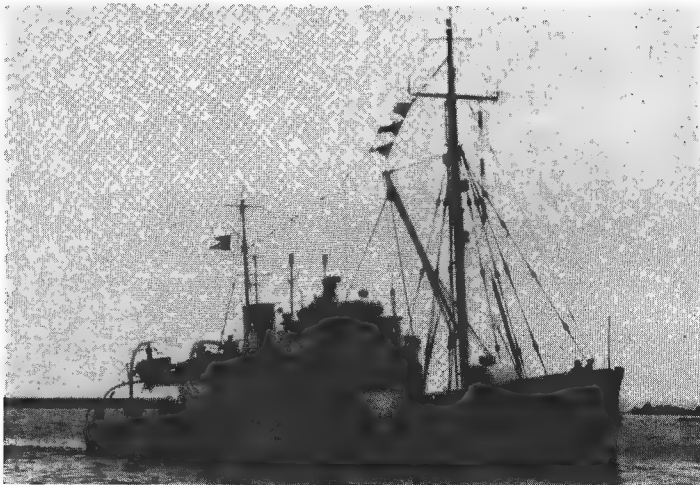


WILLEMOES		1965, Royal Danish Navy, Official	
Patrol Vessel, with P Pennant number, in 1958.	Nomenclature	Disposal	Sister ship Huitfeldt was discarded in 1965.
Named after the notable Danish naval officer.			

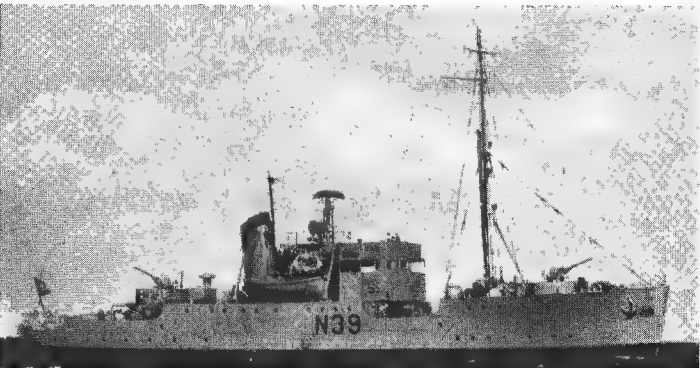
COASTAL MINELAYERS (Minelaeggere)



LANGELAND
LANGELAND N 42
1959, courtesy Captain Aldo Fraccaroli
Displacement: 309.5 tons standard, 323 tons full load
Dimensions: 133½ (o.a.), 128½ (pp.) × 23½ × 7½ feet.
Guns: 2—40 mm., 2—20 mm. Madsen
Machinery: Diesel. 2 shafts. B.H.P.: 385=11.6 kts.
Complement: 37
Construction
Built at the Royal Dockyard, Copenhagen. Laid down in 1950. Launched on 17 May 1950. Completed in 1951.



LOUGEN
1965, Royal Danish Navy, Official
2 "Laaland" Class
LAALAND N 40
LOUGEN N 41
Displacement: 240 tons standard (260 tons full load)
Dimensions: 105½ × 21½ × 6½ feet
Guns: 2—20 mm. AA.
Machinery: B. & W. diesel. 2 shafts. B.H.P.: 350=10 kts.
Complement: 31
Construction
Built at the Royal Dockyard, Copenhagen. Both laid down in 1940, launched in 1941 and completed in 1946. A photograph of Laaland appears in the 1957-58 to 1962-63 editions.



LINDORMEN
1961, Royal Danish Navy, Official
LINDORMEN N 39
Displacement: 604 tons standard (645 tons full load)
Dimensions: 175½ (o.a.), 167½ (pp.) × 29 × 8 feet
Guns: 2—40 mm. AA., 2 M.G.
Mines: 150
Machinery: Triple expansion. 2 shafts. I.H.P.: 950=12 kts.
Boilers: 2 Thornycroft 3-drum type
Complement: 66
Construction
Built at the Royal Dockyard, Copenhagen. Laid down in 1939. Launched on 30 Mar. 1940. Completed in 1940. Scuttled in Copenhagen Harbour on 29 Aug. 1943, but was salvaged and refitted with a new rig.
Disposals
The coastal minelayers Beskytteren, N 60 (ex-U.S. LSM 390, and Vindhunden, N 61 (ex-U.S. LSM 392, were discarded in 1965.

COASTAL MINESWEEPERS



AARØSUND
1961, Royal Danish Navy, Official
8 "Sund" Class
AARØSUND M 571 (ex-AMS 127)
ALSSUND M 572 (ex-AMS 128)
EGERSUND M 573 (ex-AMS 129)
GRØNSUND M 574 (ex-AMS 126)
GULDBORGSUND M 575 (ex-AMS 257)
OMØSUND M 576 (ex-AMS 221)
ULVSUND M 577 (ex-AMS 263)
VILSUND M 578 (ex-AMS 264)
Displacement: 350 tons standard (376 tons full load)
Dimensions: 138 (pp.), 144 (o.a.) × 27 × 8½ feet
Guns: 2—20 mm.
Machinery: Diesels. 2 shafts. B.H.P.: 1,200=13 kts.
Complement: 35
Construction
MSC (ex-AMS) 60 class NATO coastal minesweepers all built in U.S.A. Completed in 1954-56.
Transfer
Aarøsund was transferred on 24 Jan. 1955. Alssund on 5 Apr. 1955. Egersund on 3 Aug. 1955. Grønsund on 21 Sep. 1956. Guldborgsund on 11 Nov. 1956. Omøund on 20 June 1956. Ulvsund on 20 Sep. 1956 and Vilsund on 15 Nov. 1956.

SEAWARD DEFENCE CRAFT



HAYMANDEN
1963, Royal Danish Navy, Official
9 "Daphne" Class
Name Pennant No.: Laid down Launched Completed
DAPHNE P 530 1 Apr. 1960 10 Nov. 1960 19 Dec. 1961
DRYADEN P 531 1 July 1960 1 Mar. 1961 4 Apr. 1962
HAYFRUEN P 533 15 Mar. 1961 4 Oct. 1961 20 Dec. 1962
HAYMANDEN P 532 15 Nov. 1960 16 May 1961 30 Aug. 1962
NAJADEN P 534 20 Sep. 1961 20 June 1962 26 Apr. 1963
NEPTUN P 536 1 Sep. 1962 29 May 1963 18 Dec. 1963
NYMFEN P 535 1 Apr. 1962 1 Nov. 1962 4 Oct. 1963
RAN P 537 1 Dec. 1962 10 July 1963 15 May 1964
ROTA P 538 19 July 1963 25 Nov. 1963 20 Jan. 1965
Displacement: 170 tons
Dimensions: 121½ × 20 × 6½ feet
Guns: 1—40 mm. AA.
A/S weapons: 2—51 mm. rocket launchers. Depth charges
Machinery: Diesels. 2 shafts. B.H.P.: 2,600=20 kts. (plus 1 cruising engine. B.H.P.: 100)
Complement: 23
Construction
All built at the Royal Dockyard, Copenhagen. (For disposals of older patrol vessels of the "Sohesten" and "Krieger" classes see 1963-64 edition.)

ROYAL YACHT (Kongeskib)



DANNEBROG
1965, Royal Danish Navy, Official
DANNEBROG
Displacement: 1,130 tons
Dimensions: 246 (o.a.) × 34 × 11½ feet
Guns: 2—37 mm.
Machinery: 2 sets Burmeister & Wain 8-cylinder, 2-cycle diesels.
B.H.P.: 1,800=14 kts.
Complement: 57
General
Built at the Royal Dockyard, Copenhagen. Launched in 1931. Pennant No.: A 540.

MOTOR TORPEDO BOATS



SØLØVEN 1964, Vosper Ltd., Portsmouth, Builders

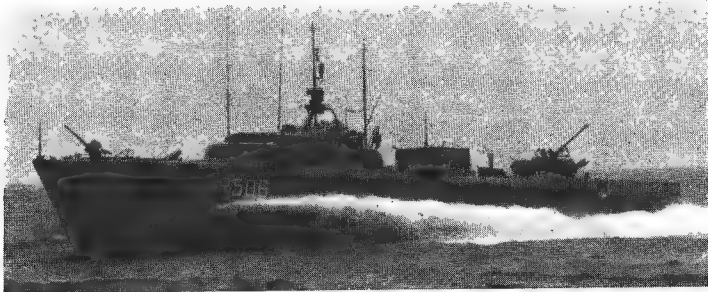
6 New Construction Gas Turbine FPB Type "Soloven" Class

Name	Pennant No.	Laid down	Launched	Completed
SØLØVEN	P 510	27 Aug. 1962	19 Apr. 1963	June 1964*
SØRIDDEREN	P 511	4 Oct. 1962	22 Aug. 1963	June 1964*
SØBJØRNEN	P 512	9 July 1963	19 Aug. 1964	
SØHESTEN	P 513	5 Sep. 1963		
SØHUNDEN	P 514	18 Aug. 1964		
SØULVEN	P 515			

Displacement: 95 tons standard (114 tons full load)
Dimensions: 90 (pp.), 96 (w.l.), 99 (o.a.)×25½×7 feet
Guns: 2—40 mm. Bofors AA.
Tubes: 4—21 inch (side)
Machinery: 3 Bristol Siddeley Proteus gas turbines. 3 shafts. B.H.P.: 12,750=54 kts.
G.M. diesels on wing shafts for cruising=10 kts.

Construction

The design is a combination of the "Brave" class hull form and "Ferocity" type construction. Søløven ("Sea Lion") and Soridderen ("Sea Knight") were built by Vosper Limited, Portsmouth, England (*delivered to the Royal Danish Navy on 12 and 10 Feb. 1965, respectively); and the remaining four under licence by the Royal Dockyard, Copenhagen.



FALKEN 1963, Royal Danish Navy, Official

4 Diesel FPB Type "Falken" Class

Name	Pennant No.	Laid down	Launched	Completed
FALKEN	P 506	1 Nov. 1960	19 Dec. 1961	4 Oct. 1962
GLENTEN	P 507	3 Jan. 1961	15 Mar. 1962	15 Dec. 1962
GRIBBEN	F 508	15 May 1961	18 July 1962	26 Apr. 1963
HØGEN	F 509	1 Sep. 1961	4 Oct. 1962	6 June 1963

Displacement: 119 tons
Dimensions: 118×17½×6 feet
Guns: 1—40 mm. AA., 1—20 mm. AA.
Tubes: 4—21 inch (side)
Machinery: 3 diesels. 3 shafts. B.H.P.: 9,000=40 kts.

Construction

Ordered under the United States offshore procurement in the Military Aid Program. All built at the Royal Dockyard, Copenhagen. Named after birds.



HAJEN 1964, Giorgio Arca

6 "Flyvefisken" Class

FLYVEFISKEN P 500	HAVKATTEN P 502	MAKRELEN P 504
HAJEN P 501	LAVEN P 503	SVÆRDFISKEN P 505

Displacement: 110 tons
Dimensions: 120×18×6 feet
Guns: 1—40 mm. AA., 1—20 mm. AA.
Tubes: 2—21 inch
Machinery: 3 diesels. 3 shafts. B.H.P.: 7,500=40 kts.

Construction

Three built in Royal Dockyard, Copenhagen, three in Frederikssund Vaerft. All units are named after fishes. Ordered in 1952, laid down in 1953 and launched in 1954-55.

VIBEN P 568 (ex-S 68)

Displacement: 99 tons standard (104 tons full load)
Dimensions: 115 (pp.), 121½ (o.a.)×17½×6 feet
Guns: 1—40 mm., 1—20 mm. AA.
Tubes: 2—21 inch
Machinery: 3 M.B. diesels 3 shafts, B.H.P.: 6,000=36 kts.

Construction

Ex-German Schnelle-boot. Launched in 1944. Built by Lürssen, Vegesack. Named after bird. Sister boat Tranen P 567 (ex-Storm, ex-S 85) was stricken from the active list in Apr. 1963 and Hejren P 563 (ex-Tross, ex-S 117) in 1965. For disposals of the other boats of this type, see 1963-64 edition. A photograph of Viben appears in the 1960-61 to 1963-64 editions.

INSHORE MINESWEEPERS



ASVIG 1962, Royal Danish Navy, Official

4 MSI Type. "Vig" Class

Name	Pennant No.	Laid down	Launched	Completed
ASVIG	M 579	22 Apr. 1959	11 May 1960	6 Sep. 1961
MOSVIG	M 580	22 Apr. 1959	14 Sep. 1960	25 Oct. 1961
SANDVIG	M 581	11 May 1960	1 Mar. 1961	1 Feb. 1962
SÆLVIG	M 582	14 Sep. 1960	14 July 1961	30 Apr. 1962

Displacement: 180 tons (official figure)
Dimensions: 113½×22½×6½ feet
Guns: 2—20 mm. AA.
Machinery: 2 diesels. 2 shafts. B.H.P.: 11,000=13 kts.
Complement: 18

Construction

All built at the Royal Dockyard, Copenhagen. Similar to the Netherlands "Van Straelen" class.



LYØ 1962, Stefan Terzibaschitsch

6 "Asko" Class

ASKØ Y 386 (ex-M 560, ex-MS 2)	HJORTØ Y 389 (ex-M 564, ex-MS 7)
BAAGØ Y 387 (ex-M 561, ex-MS 3)	LYØ Y 390 (ex-M 565, ex-MS 8)
ENØ Y 388 (ex-M 562, ex-MS 5)	MANØ Y 391 (ex-M 566, ex-MS 9)

Displacement: 74 tons
Dimensions: 78½×21×5 feet
Guns: 1—20 mm.
Machinery: Diesel. 1 shaft. B.H.P.: 350=11 kts.
Complement: 11

Construction

Of wooden construction. All launched in 1941. These remaining six boats are used for training purposes only. For disposals see 1963-64 edition.

3 "Alholm" Class

ALHOLM Y 369 (ex-MSK 1)	BIRKHOLM Y 370 (ex-MSK 2)
	ERTHOLM Y 371 (ex-MSK 3)

Displacement: 70 tons
Dimensions: 69×17×9 feet
Guns: 1—20 mm. AA.
Machinery: Diesel. B.H.P.: 120=10 kts.

Construction

Built by Frederikssund Vaerft. All launched in 1945. Used as patrol vessels.

3 "Fyrholm" Class

FYRHOLM Y 372 (ex-MSK 4)	GRÆSHOLM Y 373 (ex-MSK 5)
	LINDHOLM Y 374 (ex-MSK 6)

Displacement: 68 tons
Dimensions: 65½×16½×7½ feet
Machinery: Diesel. B.H.P.: 120=9 kts.

Construction

Built by Sydhavns Vaerft. All launched in 1944-45. Used as patrol vessels.

2 "Klørdyb" Class

KLØRDYB M 569 (ex-ML 2)	VEJDYB M 570 (ex-ML 3)
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Displacement: 21 tons
Dimensions: 50×13½×3½ feet
Machinery: Speed=9 kts.

Construction

All launched in 1944. Officially classed as shallow water minesweepers. Graadyb was condemned on 4 Feb. 1956. For other disposals see 1963-64 edition.

ICEBREAKERS

ELBJØRN	Displacement: 393 tons standard (1,400 tons full load)
	Dimensions: 157½×41½×14½ feet
	Machinery: Diesel motors. Electric drive. B.H.P.: 3,600=12 kts.

General

Built in 1953. A photograph appears in the 1956-57 to 1960-61 editions.

STOREBJØRN

Displacement: 2,540 tons
Dimensions: 197×49½×19 feet

General

Built in 1931. Icebreakers are controlled by the Ministry of Trade and Shipping.

LILLEBJØRN

Displacement: 1,000 tons
Dimensions: 144½×36½×18 feet

General

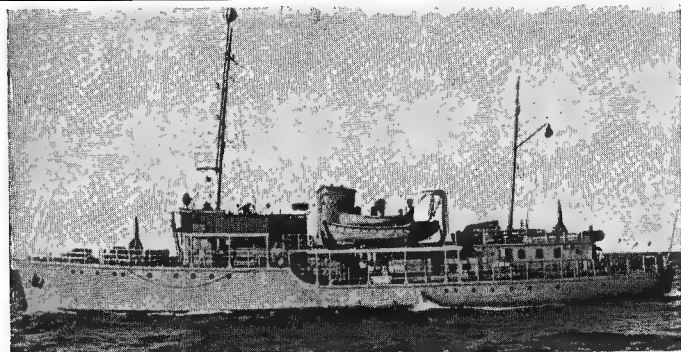
Built in 1926. The small icebreaker Mjolner was stricken from the list in 1960.

ISBJØRN

Displacement: 1,675 tons
Dimensions: 170½×40×22½ feet

General

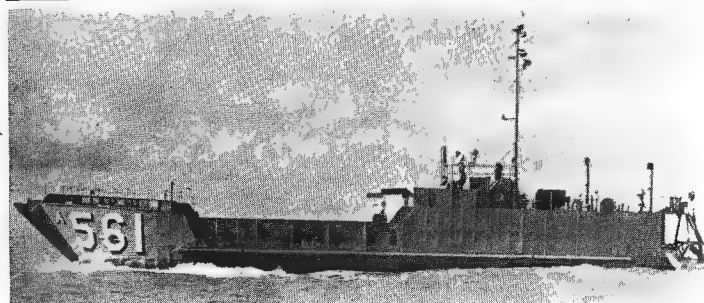
Built in 1923. This vessel has two funnels. All the other icebreakers have only one.

SURVEYING VESSEL (*Opmaalingsskib*)

FREJA courtesy Captain R. Steen Steensen, R.D.N.
General
 Built at Royal Dockyard, Copenhagen. Launched on 22 Dec. 1938. Pennant No. A 541. The survey vessel *Hejmdal*, A 542, was stricken from the Navy List in 1960.

PATROL CRAFT (*Orlogskuttere*)

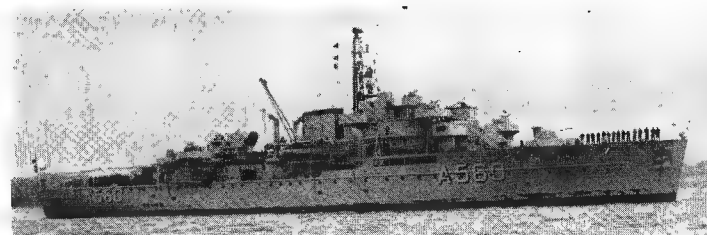
MALLEMUKKEN 1962, Royal Danish Navy, Official
2 "Maagen" Class
MAAGEN (Y 384) Displacement: 190 tons
 Dimensions: 88½ × 21½ × 9½ feet
 Guns: 1—40 mm. AA.
 Machinery: H.P.: 385. 1 shaft. Speed 11 kts.
Construction
 Of steel construction. Built at Helsingør, laid down 15 Jan. 1960, launched 1960.
SKARVEN (Y 382) Displacement: 130 tons
 Dimensions: 82 × 20½ × 9½ feet
 Guns: 1—37 mm.
 Machinery: Alfa Diesel, B.H.P.: 180=9 kts.
Construction
 Of wooden construction. Built by Lilleøværft, Korsør, and Holbæk Skibsbyggeri respectively. Launched 1951. All four for service in Greenland waters.

LANDING CRAFT

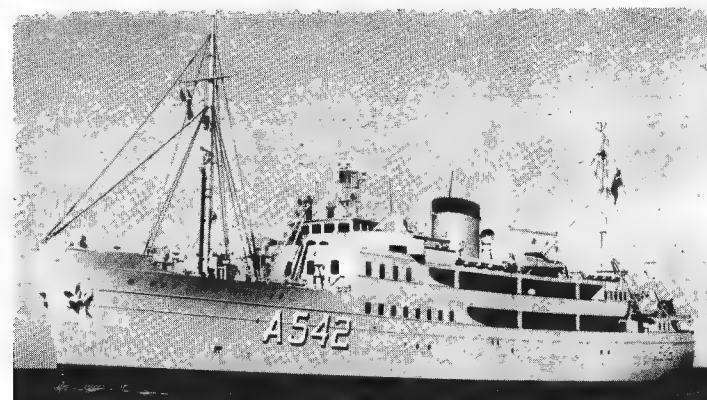
ODIN 1962, Royal Danish Navy, Official
10 Ex-U.S. LCU Type
BALDER (ex-U.S. LCU 715) A 543
BRAGE (ex-U.S. LCU 810) A 544
HERMOD (ex-U.S. LCU 1042) A 545
LOKE (ex-U.S. LCU 1294) A 546
ODIN (ex-U.S. LCU 649) A 561
THOR (ex-U.S. LCU 765) A 562
TYR (ex-U.S. LCU 1230) A 564
ULLER (ex-U.S. LCU 1373) A 565
VALE (ex-U.S. LCU 1383) A 566
VIDAR (ex-U.S. LCU 1422) A 567
 Displacement: 150 tons light (315 tons full load)
 Dimensions: 105 (w.l.), 115½ (o.a.) × 32½ × 5½ (max.) feet
 Guns: 2—20 mm. AA.
 Machinery: Gray Marine diesels. 3 shafts. B.H.P.: 675=10 kts.
 Complement: 11
General
 Landing Craft Utility transferred to the Royal Danish Navy from the U.S.A., *Odin* and *Thor* on 10 Jan., 1962, *Tyr*, *Uller*, *Vale* and *Vidar* in Jan. 1963, and *Balder*, *Brage*, *Hermud* and *Loke* on 1 May 1963.

DEPOT AND REPAIR SHIPS

HJÆLPEREN 1964, Stefan Terzibaschitsch
HJÆLPEREN (ex-U.S. LSM 500)
 Displacement: 1,030 tons standard (1,170 tons full load)
 Dimensions: 203½ (o.a.) × 34½ × 8½ feet
 Guns: 2—40 mm.
 Machinery: Diesels. 2 shafts. B.H.P.: 2,800=12 kts.
 Complement: 60
Construction
 Former United States medium landing ship. Built by Brown Shipbuilding Co., Houston, Texas. Laid down on 17 Mar. 1945. Launched on 7 Apr. 1945. Completed on 17 May 1945. Transferred to the Royal Danish Navy on 15 May 1953. Depot and Repair ship for motor torpedo boats, Pennant No.: A 563.



ÆGIR 1964, Stefan Terzibaschitsch
ÆGIR (ex-Tango)
 Displacement: 2,620 tons full load (official figure)
 Dimensions: 299 (311½ o.a.) × 44½ × 13½ feet
 Guns: 4—4 inch, 6—40 mm. AA.
 Machinery: 2 M.A.N. diesels. B.H.P.: 4,100=17.5 kts.
 Complement: 200
Construction
 Former German depot ship. Built by Neptun Werft, Rostock. Launched in 1938. Purchased and rebuilt with new lattice mast, and new anti-aircraft armament. Reconstruction was completed in June 1951. Pennant No. A 560.



HENRIK GERNER 1965, Royal Danish Navy, Official
HENRIK GERNER (ex-M/S *Hammershus*)
 Displacement: 2,200 tons standard (official figure)
 Dimensions: 252½ × 40 × 18½ feet
 Guns: 6—40 mm. AA.
 Machinery: Burmeister & Wain diesel, Speed=15 kts.
 Complement: 230
General
 Former Danish passenger ship. Built in 1936. Transferred to the Royal Danish Navy on 8 Jan. 1964, refitted at the Royal Dockyard, Copenhagen, and commissioned as a depot ship for submarines. Pennant No. A 542.

OILERS (*Tankfartøjer*)

RIMFAXE (ex-U.S. YO 226) A 568 **SKINFAXE** (ex-U.S. YO 229) A 569
 Displacement: 422 tons light (1,390 tons full load)
 Dimensions: 174 (o.a.) × 32 × 13½ feet
 Machinery: 1 General Motors diesel. B.H.P.: 560=10 kts.
 Complement: 23
General
 Yard oilers transferred to the Royal Danish Navy from the U.S.A. on 2 Aug. 1962. A photograph of *Rimfaxe* appears in the 1963-64 and 1964-65 editions.

TENDERS

HOLL/ENDERDYBET (ex-Den *Lille Havfrue*) **KONGEDYBET** (ex-Kirsten *Pill*)
 Displacement: 158 tons full load (88 tons gross)
 Dimensions: 150 × 19 × 7½ feet
 Machinery: Diesel
General
 Both launched in 1935. Used for transport. Nos. A 554, A 555, respectively.

DOMINICAN REPUBLIC

Administration

Under Secretary For The Navy:
Captain Sergio de Jesus Diaz Toribio.

Chief of Naval Staff:
Commodore Francisco Rivera Caminero.

Vice-Chief of Naval Staff:
Captain Ramon Emilio Jimenez Hijo.

Naval Attaché in London:
Commodore Julio Alberto Rib Santamaria.

Personnel

1965: 3,832 officers and men

Naval Attaché in Washington:
Commodore Federico Betances Pierret.

DESTROYERS (Destructoros)

I Ex-British "Hero" Class

DUARTE (ex-Trujillo, ex-H.M.S. Hotspur)

Pennant No.: D 101
Builders: Scotts' S.B. & Eng. Co. Ltd., Greenock
Laid down: 27 Feb. 1935
Launched: 23 Mar. 1936
Completed: 29 Dec. 1936

Displacement: 1,340 tons standard (2,020 tons full load)
Dimensions: 312 (pp.), 320 (w.l.), 323 (o.a.) \times 33 \times 8 $\frac{1}{2}$ feet (mean)
Guns: 3—4.7 inch, 6—20 mm. AA.
Tubes: 4—21 inch
A/S weapons: 4 D.C.T.
Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 34,000=36 kts. (31 kts. sea speed)
Boilers: 3 Admiralty 3-drum type
Oil fuel: 455 tons
Radius: 5,700 miles at 15 kts.
Complement: 145



DUARTE

1954, Skyfotos

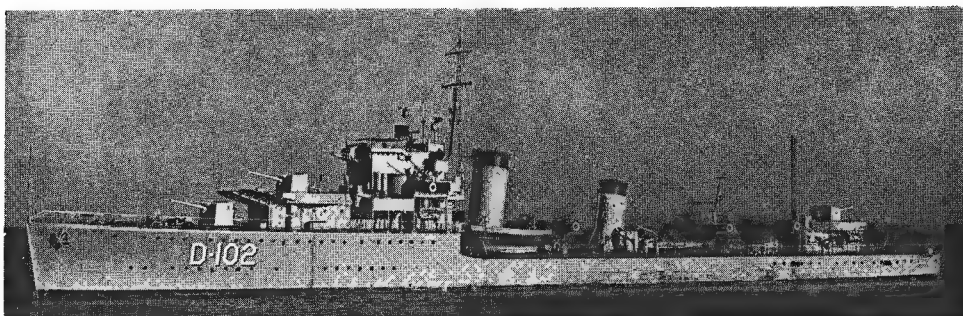
General
Former British destroyer of the "H" flotilla which served in the Royal Navy until Nov. 1948 when she was purchased from Great Britain and renamed Trujillo. Renamed Duarte in 1962.

I Ex-British "Fearless" Class

SANCHEZ (ex-Generalissimo, ex-H.M.S. Fame)

Pennant No.: D 102
Builders: Vickers-Armstrongs, Barrow
Laid down: 5 July 1933
Launched: 28 June 1934
Completed: 26 Apr. 1935

Displacement: 1,350 tons standard (2,060 tons full load)
Dimensions: 318 $\frac{1}{2}$ (pp.), 326 (w.l.), 329 (o.a.) \times 33 \times 8 $\frac{1}{2}$ feet (mean)
Guns: 3—4.7 inch, 6—20 mm. AA.
Tubes: 4—21 inch
A/S weapons: 4 D.C.T.
Machinery: Parsons geared turbines, S.H.P.: 36,000=36 kts. (31 kts. sea speed)
Boilers: 3 Admiralty 3-drum type
Oil fuel: 480 tons
Radius: 6,000 miles at 15 kts.
Complement: 145



SANCHEZ

1961, Official

General
Former British destroyer of the "F" flotilla which served in the Royal Navy until Feb. 1949 when she was transferred from Great Britain and renamed Generalissimo. Renamed Sanchez in 1962.

FRIGATES (Fragatas)

2 Ex-U.S. "River" Type

CAP. GENERAL PEDRO SANTANA (ex-Presidente

Peinado, ex-U.S.S. Pueblo, PF 13)

GREGORIO LUPERON (ex-Presidente Trancoso, ex-U.S.S. Knoxville, PF 64)

Name: Gregorio Luperon C. G. Pedro Santana
Pennant No.: F 104 F 103
Builders: Leatham D. Smith Kaiser S.Y.
S.B. Co., Wis. Richmond, Cal
Laid down: 15 Apr. 1943 14 Nov. 1943
Launched: 10 July 1943 20 Jan. 1944
Completed: 29 Apr. 1944 27 May 1944

Displacement: 1,430 tons standard (2,415 tons full load)
Dimensions: 304 (o.a.) \times 37 $\frac{1}{2}$ \times 12 (mean), 13 $\frac{1}{2}$ (max.) feet
Guns: 3—3 inch; 4—40 mm. AA. (two twin); 6—20 mm. AA.; 4—0.5 inch M.G. (two twin)
Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=19 kts.
Boilers: 2, of 3-drum type
Oil fuel: 760 tons
Complement: 140



PEDRO SANTANA

1961, Official

General
Former United States "Tacoma" class frigates. Transferred to Dominican Navy in 1949. Renamed in 1962. The frigate Juan Pablo Duarte (ex-Notchez, ex-H.M.S. Annon) was lost.

I Ex-Canadian "River" Type

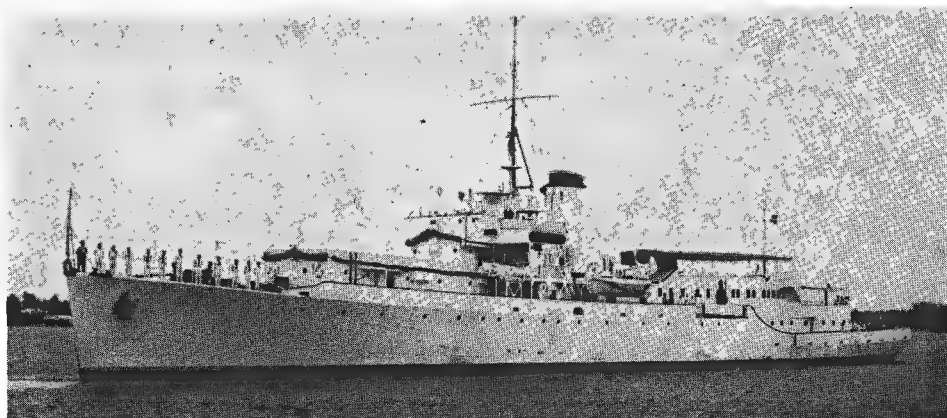
MELLA (ex-Presidente Trujillo, ex-H.M.C.S. Carlplace)

Pennant No.: F 451
Builders: Davie S.B. and Repairing Co., Lauzon
Launched: 6 July 1944
Completed: 13 Dec. 1944

Displacement: 1,400 tons standard (2,125 tons full load)
Dimensions: 301 $\frac{1}{2}$ \times 36 $\frac{1}{2}$ \times 12 (mean) feet
Guns: 1—4 inch, 2—47 mm., 1—40 mm. AA. as frigate (no longer mounted)
Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=20 kts.
Boilers: 2, of 3-drum type
Oil fuel: 645 tons
Complement: 195 (15 officers, 130 men, 50 midshipmen)

General

Transferred to the Dominican Navy in 1946. Original Dominican frigate. Modified for use as Presidential Yacht with extra accommodation and deck-houses built up aft. Pennant No. as a frigate was F 101, but as the Presidential Yacht she no longer wears it. Renamed Mella in 1962. Also used for training midshipmen.



MELLA

1958, Official

CORVETTES (Corbetas)

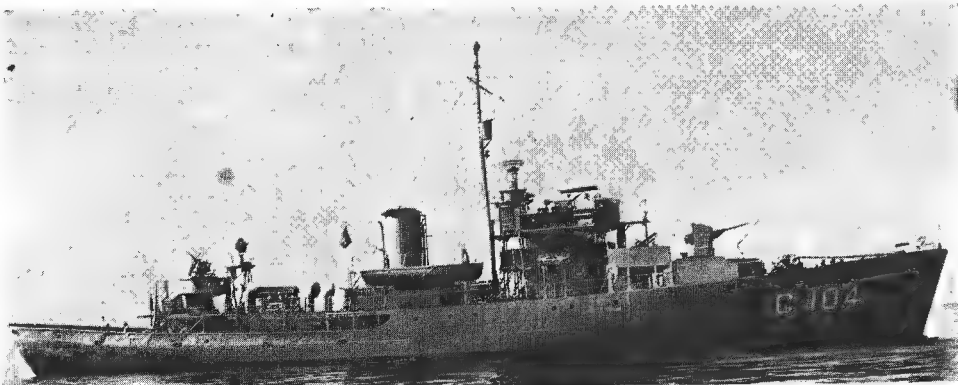
5 Ex-Canadian "Flower" Type

Displacement: 1,060 tons standard (1,350 tons full load)
Dimensions: 193 (pp.), 208 (o.a.) x 33 x 13½ (mean) feet
Guns: Colon: 1—3 inch; 2—40 mm. AA. (twin); 6—20 mm. AA.; 4—0.5 M.G. (two twin) Other Four: 1—4 inch; 1—40 mm. AA.; 6—20 mm. AA.; 2—0.5 M.G.
Machinery: Triple expansion, I.H.P.: 2,750 =16 kts.
Boilers: 2, of 3-drum type
Oil fuel: 282 tons
Complement: 53

General
All built in Canadian shipyards under the emergency construction programme during the Second World War. Transferred to the Dominican Navy in 1947. The sixth ship, Asbestos, was wrecked en route from Canada.

Photographs
A photograph of Juan Bautista Maggialo appears in the 1951-52 to 1957-58 editions, and of Cristobal Colon in the 1951-52 to 1960-61 editions.

Name	Pennant No.
CRISTOBAL COLON (ex-H.M.C.S. Lachute)	C 101
GERARDO JANSEN (ex-H.M.C.S. Peterborough)	C 104
JUAN ALEJANDRO ACOSTA (ex-H.M.C.S. Louisbourg)	C 102
IUAN BAUTISTA CAMBIASO (ex-H.M.C.S. Belleville)	C 103
IUAN BAUTISTA MAGGIOLO (ex-H.M.C.S. Riviere du Loup)	C 105



GERARDO JANSEN

1961, Official

Builders	Launched	Completed
Morton Ltd., Quebec City, P.Q.	9 June 1944	26 Oct. 1944
Kingston Shipbuilding Co., Kingston, Ontario.	15 Jan. 1944	1 June 1944
Morton Ltd., Quebec City, P.Q.	13 July 1943	13 Dec. 1943
Kingston Shipbuilding Co., Kingston, Ontario.	17 June 1944	19 Oct. 1944
Morton Ltd., Quebec City, P.Q.	2 July 1943	21 Nov. 1943

PATROL VESSELS (Patrulleros)



27 DE FEBRERO

1957, Official

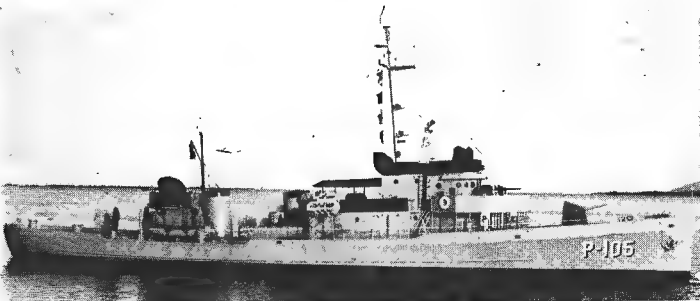
2 Ex-U.S. PC Type

Name	Pennant No.	Launched
27 DE FEBRERO (ex-U.S.S. PC 613)	P 101	27 Oct. 42
CONSTITUCION (ex-Cibas, ex-Engage, ex-U.S.S. PC 1597)	P 103	11 July 42

Displacement: 280 tons standard (450 tons full load)
Dimensions: 170 (w.l.), 173½ x 23 x 7½ feet
Guns: 1—3 inch, 50 cal., 1—40 mm. AA., 1—20 mm. AA.
Machinery: Diesels, 2 shafts. B.H.P.: 3,750=22 kts.
Complement: 50

General
Ex-United States patrol vessels (submarine chasers). Launch dates above. Built by Gibbs Gas Engine Co., Jacksonville, Fla.; and Dravo Corp., Neville Island, Pa., respectively, laid down on 7 July 1942, and 26 Feb. 1942, completed on 2 June 1943, and 22 Oct. 1942. Pennant Nos. P 101 and 103, respectively. Renamed in 1962.

Disposal
Sister ship Patria, P 102 (ex-Capitán Wenceslas Arvels, ex-U.S.S. PC 1202) was discarded in 1962.



INDEPENDENCIA

1964, Dominican Navy, Official

3 Ex-U.S.C.G. WPC Type

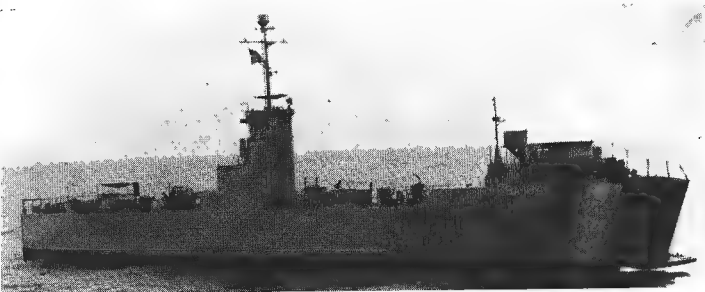
Name	Pennant No.	Launched
INDEPENDENCIA (ex-U.S.C.G.C. Icarus)	P 105	1931
LIBERTAD (ex-Rafael Atoa, ex-U.S.C.G.C. Thetis)	P 106	1931
RESTAURACION (ex-U.S.C.G.C. Galathea)	P 104	1932

Displacement: 334-337 tons
Dimensions: 165x25½x9½ feet
Guns: 1—3 inch, 1—40 mm., 1—20 mm.
Machinery: 2 Diesels. B.H.P.: 1,280=15 kts.
Complement: 35 (Independencia, 4 officers, 25 men)

General
Ex-United States Coastguard Cutters. Independencia was completed by Bath Iron Works in 1932, and Restauracion by John H. Machis & Co., Camden, N.J., in 1933.

Disposal
The training ship Duarte (ex-Nueva Tioditie), GA 1, was discarded in 1962.

MEDIUM LANDING SHIP (Barcazas de Desembarco)



SIRIO

1964, Dominican Navy, Official

1 Ex-U.S. LSM Type. Rated as Auxiliary (Buque Auxiliar)

SIRIO (ex-U.S.S. LSM 483)
Displacement: 734 tons standard (1,100 tons full load)
Dimensions: 196 (w.l.), 203½ (o.a.) x 34 x 10 (mean) feet
Machinery: 2 General Motors diesels, 2 shafts. B.H.P.: 1,800=14 kts.
Oil fuel: 164 tons
Complement: 30

General
Ex-United States LSM. (Medium Landing Ship.) Built by Brown Shipbuilding Co., Houston, Texas. Laid down on 17 Feb. 1945, launched on 10 Mar. 1945 and completed on 13 Apr. 1945. Transferred to the Dominican Navy in 1960. Pennant No. BA 104.

Disposals
The landing ship San Rafael, BA-103 (ex-U.S.S. LSM 216) was discarded from the Service in 1960. Antares, BA 105 (ex-U.S.S. LSM 538) was sold in 1959. The landing craft Paraiso, BDI-103 (ex-Quetzal, ex-Fantasma, ex-U.S.S. LCIL 1006), transferred from the Dominican Republic Mercantile Marine in 1952, was discarded from the Service in 1960, it was officially stated. BDI 101 and BDI 102 were removed from the effective list in 1957.

UTILITY LANDING CRAFT (Barcazas de Desembarco)



ENRIQUILLO

1964, Dominican Navy, Official

2 LCT Type Rated as Auxiliary Landing Craft (Lanchas Auxiliares)

ENRIQUILLO (ex-17 de Julio) LA 3
Displacement: 150 tons standard (310 tons full load)
Dimensions: 105 (w.l.), 119½ (o.a.) x 36 x 3 (mean) feet
Guns: 1 AA., 50 cal.
Machinery: 3 General Motors diesels. B.H.P.: 441=8 kts.
Oil fuel: 80 tons
Complement: 17

General
Both built by Astilleros Navales Dominicanos in 1957-58. The new Samana, LA 2, replaced the Samana LA 2 lost in bad weather. Enriquilla (ex-17 de Julio) was launched on 24 Oct. 1957. Renamed in 1962.

Disposals
The ex-United States Tank Landing Craft of the LCT (6) type, 17 de Julio and Maria Josefina, Pennant Nos. LA 3 and LA 4, respectively, were withdrawn from service in 1956, but two landing craft of the same specifications were built.

COAST GUARD VESSELS (Guardacostas)

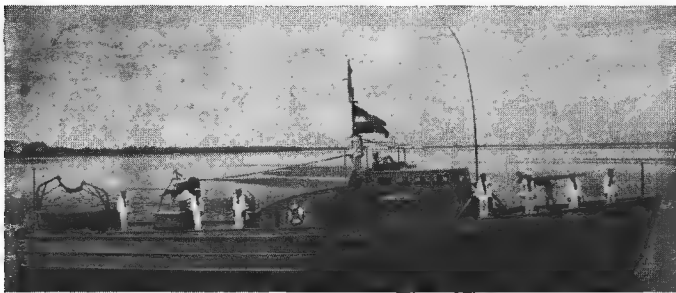


30 DE MARZO 1952, Official
30 DE MARZO (ex-Mella, ex-Rosa, ex-SC 1351, 11 March 1943)
LAS CARRERAS (ex-Sanchez, ex-Patria, ex-SC 1353, 3 June 1943)

Displacement: 85 tons standard (130 tons full load)
Dimensions: 107½ (w.l.), 111 (o.a.) × 17 × 6½ feet
Machinery: Diesel. 2 shafts. B.H.P.: 4,000=19.5 kts.
Fuel: 15 tons
Complement: 20
General
Built by the Vineyard Boat Building Co., Milford, Del. Launch dates above. Of wooden construction. Pennant Nos. GC 101 and GC 102, respectively. Renamed Sanchez and Mella in 1957. Renamed in 1962.

PGM 83

New Construction
Scheduled in 1964 to be built in the U.S.A. for transfer to the Dominican Republic under the Military Aid Programme.



BAHIA OCOA (ex-22 de Junio) 1957, Official
LAS CALDERAS (ex-Luberon) BAHIA OCOA (ex-22 de Junio)

Displacement: 47 tons standard
Dimensions: 83 × 16½ × 4½ feet
Guns: 2—20 mm., 2 M.G., 8 D.C.
Machinery: Diesel. B.H.P.: 1,200=23.5 kts.
General
Built by Wheeler Shipyards, Brooklyn. Launched in 1943. Hulls are of wood. Ex-U.S.C.G. cutters 56197 and 56198, respectively. Pennant Nos. GC 9 and GC 10, respectively. Named in 1957, GC 3, GC 4, GC 5, GC 6 and GC 7 were discarded in 1957. Renamed in 1962.

Disposals
Sister boat Bahia Manzanillo, GC 11 ex-16 de Agosto, ex-U.S.C.G. cutter 56199) was discarded in 1962.

The coastguard vessel Trinidad, GC 8, was also discarded in 1962, and Boya, GC-2, in 1960.

LIGHTHOUSE AND BUOY TENDER (Buque de Faros y Boyas-Boyero)

CAPOTILLO (ex-Camilla)

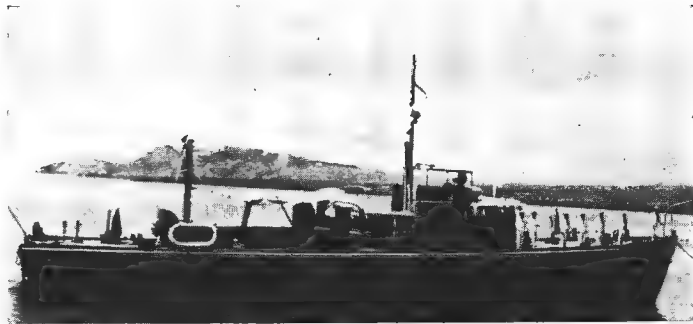
Displacement: 337 tons
Dimensions: 117 × 24 × 7½ feet
Machinery: 2 Diesels. B.H.P.: 880=10 kts.
Complement: 40
General
Built in the United States in 1911. Acquired from the United States Coast Guard in 1949. Pennant No. FB 101. A photograph of this ship appears in the 1957-58 edition.

MOTOR LAUNCH (Lancha Auxiliare)

MAIMON

Dimensions: 53 × 9 × 4 feet
Machinery: 2 motors. H.P.: 500=14 kts.
Complement: 4
General
Acquired for the Hydrographic Service of the Navy in 1960. Pennant No.: LA-5.
Disposals
The motor launch Altogracla, LA-1 (ex-Laura) was discarded in 1960, and Najaya, LA 4, in 1962.

RESCUE LAUNCHES (Lanchas de Rescate)



CAPITAN ALSINA 1959, Official
CAPITAN ALSINA CAPITAN MADURO

Displacement: 100 tons standard
Dimensions: 92 (w.l.), 104½ (o.a.) × 19½ × 5½ feet
Guns: 2—20 mm. AA., 2 M.G.
Machinery: Capitán Alsina: Diesel; Capitán Maduro: 2 Packard engines. 2 shafts. H.P.: 1,000=17 kts.
Complement: 20
General
Of wooden construction. All launched in 1944. Named as above in 1957. Pennant Nos. R 101 and LR 103, respectively. LR 102 was lost in 1956.

YACHT

PATRIA (ex-Angelita)

General
Four masted yacht with auxiliary engines. Presidential Yacht. Renamed Patria in 1964.
Disposals
The auxiliary ships (Buques Auxiliares) 18 de Diciembre, BA-101 (ex-U.S. WPC 587), converted patrol vessel, and Leonor, BA-102 (ex-Romanita), were discarded in 1960.

OILERS

(ex-U.S. YO 213) (ex-U.S. YO 215)

Displacement: 1,400 tons full load
Dimensions: 174 × 32 feet
Machinery: S.H.P.: 525
Capacity: 6,570 barrels

General
Former United States self propelled fuel oil barges. Both built by Ira S. Bushey & Sons, Inc., Brooklyn, New York. Loaned by the U.S.A. in Mar. 1964.

ULISES HEUREAUX (ex-24 de Octubre, ex-YO 2)
Displacement: 1,460 tons
Measurement: 602 tons gross
Dimensions: 180 × 30 × 13½ feet
Machinery: 2 Diesels. B.H.P.: 480=8 kts. (loaded speed)
Capacity: 280,000 gallons
Complement: 27

General
Built in the United States in 1943. Recently used by Government as a commercial carrier. Renamed Ulises Heureau in 1962. Pennant No. BT 101. A photograph appears in the 1957-58 edition.

Disposal
The oiler San Carlos, BT 102, was officially deleted from the list in Feb. 1965.

TUGS (Remolcadores)

HERCULES II GUACANAGARIX

Dimensions: 70 × 18½ × 9 feet
Machinery: 1 motor. H.P.: 500. 1,225 r.p.m.
Complement: 11

General
Small tugs of new construction. Pennant Nos. R 2 and R 5, respectively.

ISABELA
Displacement: 40 tons
Dimensions: 65 × 14 × 9 feet
Machinery: 2 Diesel motors. B.H.P.: 300=8 kts.
Complement: 8

General
Built in the United States. Named Isabela in 1957. Pennant No. R 1. A photograph appears in the 1951-52 to 1957-58 editions. The tug Hercules (ex-Heracles), Pennant No. R 2, transferred from the Dominican mercantile marine in 1952, was lost in 1956.

MERCEDES SANTANA
General
Small tugs for harbour and coastal use. Pennant Nos. R 10 and R 7, respectively.

Disposals
The tugs Bergantín, R-6, Catalina, R-3, Leonidas, R-8 and Luperon, R-4 were discarded in 1960-62.

ECUADOR

Administration

Minister of Defence:
General Aurelio Naranjo Campaña.

Commander-in-Chief of the Navy:
Captain Carlos Monteverde Granados.

Naval Attaché in London:
Colonel E. M. Luis A. German Cifuentes.

Naval Attaché in Washington:
Captain Francisco Espinosa.

Personnel

1965: 3,700 officers and men

Establishments

Naval Academy: In Salinas

Ships

Chief of Naval Staff:
Captain Francisco Espinosa Coronel.

The names of Ecuadorian naval vessels are prefaced by "B.A.E."

Naval Bases

In Galápagos, Guayaquil, Salinas, and San Lorenzo.

FRIGATES

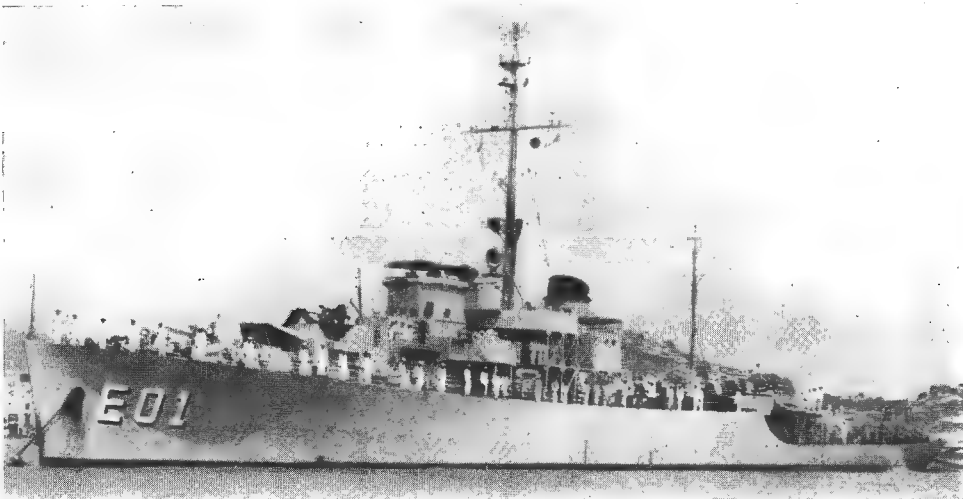
1 Ex-U.S. PF Type

GUAYAS (ex-U.S.S. Covington, PF 56)

Pennant No.:	E 01
Builders:	Globe S.B. Co. Superior, Wis.
Laid down:	1 Mar. 1943
Launched:	15 July 1943
Completed:	3 Aug. 1944

Displacement:	1,430 tons standard (2,415 tons full load)
Dimensions:	304 (o.a.)×37½×13½ feet
Guns:	2—3 inch, 2—40 mm. AA., 4—20 mm. AA.
A/S weapons:	3 D.C.T.
Machinery:	Triple expansion, 2 shafts, 1.H.P.: 5,500=18 kts.
Boilers:	2 small tube
Oil fuel:	290 tons normal, 645 tons max.
Radius:	7,000 miles at 18 kts.; 9,500 miles at 12 kts.
Complement:	150

General
Former United States patrol frigate of the PF type. Purchased from the U.S.A. in 1947. Similar in design to British "River" class frigates.



GUAYAS

1963, Ecuadorian Navy, Official

2 Ex-British "Hunt" Class (Type I)
Escort Destroyers

PRESIDENTE ALFARO (ex-H.M.S. Quantock)
PRESIDENTE VELASCO IBARRA (ex-H.M.S. Meynell)

Name:	Presidente Alfaro	Presidente Velasco Ibarra
Pennant No.:	D 01	D 02
Builders:	Scotts' Shipbuilding & Eng. Co. Ltd., Greenock	Swan, Hunter & Wigham Richardson, Ltd., Wallsend-on-Tyne.
Laid down:	26 July 1939	10 Aug. 1939
Launched:	22 Apr. 1940	7 June 1940
Completed:	6 Feb. 1941	30 Dec. 1940

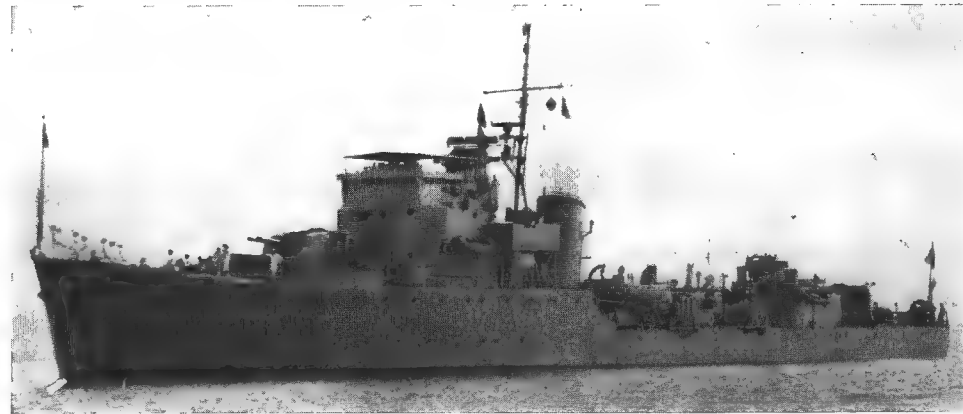
Displacement:	1,000 tons standard (1,490 tons full load)
Dimensions:	272½ (pp.), 280 (o.a.)×29×14 feet
Guns:	4—4 inch AA., 4—2 pdr., 2—20 mm. AA.
A/S weapons:	D.C.T., D.C. racks
Machinery:	Parsons geared turbines (by Wallsend Slipway in Presidente Velasco Ibarra), 2 shafts. S.H.P.: 19,000=25 kts. (max.)
Boilers:	2 Admiralty 3-drum type
Oil fuel:	280 tons
Radius:	2,000 miles at 12 kts., 800 miles at 25 kts.
Complement:	146



PRESIDENTE VELASCO IBARRA

1965, Ecuadorian Navy, Official

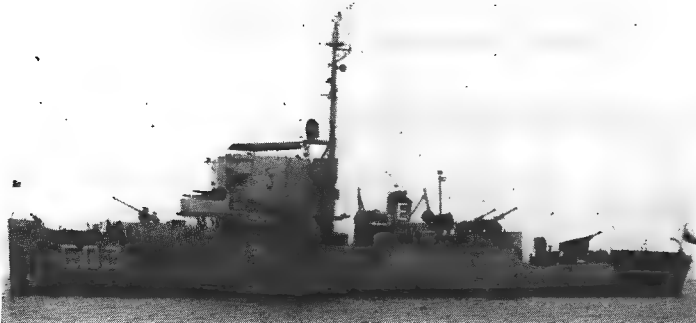
General
Former British frigates (ex-escort destroyers) of the "Hunt" Class, Type I, purchased by Ecuador from Great Britain in 1955, and refitted by J. Samuel White & Co. Ltd., Cowes, Isle of Wight. Quantock was taken over by the Ecuadorian Navy from the Royal Navy in Portsmouth Dockyard on 16 Aug. 1955, when she was renamed Presidente Alfaro. Sister ship Meynell was transferred to the Ecuadorian Navy later and renamed Presidente Velasco Ibarra.



PRESIDENTE ALFARO

1963, Ecuadorian Navy, Official

ESCORT PATROL VESSELS



ESMERALDAS 1965, Ecuadorian Navy, Official

2 Ex-U.S. PCE Type Escort Patrol Vessels

ESMERALDAS (ex-U.S.S. Eunice, PCE 846)
MANABI (ex-U.S.S. Pascagoula, PCE 874)

Name:	Esmeraldas	Manabi
Pennant No.:	EO 3	EO 2
Builders:	Pullman Standard Car Manufacturing Co., Chicago, Ill.	Albina Eng. & Mach. Works, Portland, Oreg.
Laid down:	10 Aug. 1943	1 Mar. 1943
Launched:	20 Dec. 1943	11 May 1943
Completed:	4 Mar. 1944	31 Dec. 1943
Transferred:	29 Nov. 1960	5 Dec. 1960
Displacement:	640 tons standard (903 tons full load)	
Dimensions:	180 (w.l.), 184½ (o.a.)×33×9½ feet	
Guns:	1—3 inch dual purpose, 6—40 mm. AA.	
A/S weapons:	4 D.C.T.	
Machinery:	G.M. diesels. 2 shafts. B.H.P.: 1,800=15.4 kts.	
Complement:	100 officers and men	

General
Built in the U.S.A. as above. Former United States patrol vessels (180 ft. Escorts) transferred from the U.S. Navy to the Ecuadorian Navy in 1960.
Photographs
A photograph of Manabi, EO 2, appears in the 1963-64 and 1964-65 editions.
Disposals
The patrol vessel (guardacosta) Manabi (ex-Diez de Agosto, ex-U.S.S. Opal, ex-Coronet) ex-yacht PYc8, acquired from the United States Navy in Sep. 1943, was officially deleted from the list in 1960.
The patrol vessel (ex-yacht) Esmeraldas was sunk at Guayaquil in Guyas River 1 Sep. 1953.
The training ship Presidente Alfaro (ex-Ara) was discarded in 1956.

PATROL BOATS



LP 6 1963, Ecuadorian Navy, Official

6 German Type

LSP 1	LSP 2	LSP 3	LSP 4	LSP 5	LSP 6
Displacement:	45 tons standard (64 tons full load)				
Dimensions:	76½×13½×4½ (mean). 6½ (max.) feet				
Armament:	AA. and ASW weapons				
Machinery:	Bohn & Kahler diesel. 2 shafts. B.H.P.: 1,200=22 kts.				
Radius:	550 miles at 16 kts.				
Complement:	9				

Construction
Built by Hermann Havighorst, Bremen-Blumenthal. Ordered in 1954. First two were delivered August 1954, and the remainder in 1955. A photograph of LP 1 appears in the 1955-56 to 1963-64 editions.
Disposals
The patrol boats LP 7 to LP 12 were officially deleted from the list in 1960.

TENDERS

LOJA

Displacement: 295 tons light (390 tons full load)
Machinery: Fairbanks Morse diesel. Speed—12 kts.

General
Built in 1952. Acquired by the Ecuadorian Navy in 1964.

Auxiliary Vessels

Although not on the Navy List of Ecuador the hulls of the former U.S. Navy high speed transports (modified destroyer escorts) Reeves APD 52, Frament, APD 77, Croslev APD 87, Hunter Marshall, APD 112, and Walter S. Gorka, APD 114, were transferred from the United States in July and Aug. 1961 for use as floating power plants.
The auxiliary floating dock ARD 17, now renamed Amazonas, was also transferred on 7 Jan. 1961, and dry dock companion craft YFND 20 was leased on 2 Nov. 1961.
Disposals of Coast Guard Vessels
Of the two coast guard vessels, Abdon Calderon (ex-Cotopaxi) was officially deleted from the list in 1961, and Atahualpa in 1962.
The transport El Oro (ex-Cinco de Junio, ex-APC 85) was officially deleted from the list in 1961.

LANDING SHIPS



TARQUI 1963, Ecuadorian Navy, Official

2 Ex-U.S. LSM Type

JAMBELI (ex-U.S.S. LSM 539) TD 02	TARQUI (ex-U.S.S. LSM 555) TD 01
Displacement:	743 tons beaching (1,095 tons full load)
Dimensions:	196½ (w.l.), 203½ (o.a.)×34½×8½ feet
Guns:	2—40 mm. Bofors AA.
Machinery:	Diesels. 2 shafts. B.H.P.: 2,800=12.5 kts.
Complement:	60

General
Former United States Medium Landing Ships (LSM). Jambeli was laid down by Brown Shipbuilding Co., Houston, Tex., on 10 May 1945. Tarqui was laid down by the Navy Yard, Charleston, S.C. on 3 Mar. 1945 and launched on 22 Mar. 1945. Purchased from the U.S.A. in 1958 and transferred to the Ecuadorian Navy at Green Cove Springs, Florida. A photograph of Jambeli appears in the 1960-61 to 1963-64 editions.

SUPPLY SHIP

(ex-U.S. FS 525)

General
Former United States small cargo ship of the Army FS type. Leased to Ecuador on 8 Apr. 1963. Provides service to the Galapagos Islands.
Loss
The oiler Rumiflahul, YO 123, foundered in the Carribean on 22 Nov. 1964.

WATER CARRIER

ATAHUALPA (ex-U.S. YW 131)

Displacement: 415 tons light (1,500 tons full load)
Dimensions: 174×33 (max.) feet
Machinery: General Motors diesel. 750 r.p.m.=11.5 kts.; 350 r.p.m.=5.3 kts.
Radius: 2,370 miles at 8 kts.
Capacity: 287,800 gallons

General
Built by Leatham D. Smith Shipbuilding Co., Sturgeon Bay, Wisconsin, U.S.A. in 1945. Former United States Navy self-propelled water barge transferred under the Military Aid Programme in Mar. 1963. Acquired by the Ecuadorian Navy on 2 May 1963. Pennant No. AO-1.

TUGS



LOS RIOS 1963, Ecuadorian Navy, Official

LOS RIOS (ex-U.S.S. Cusabo, ATF 155)

Displacement: 1,235 tons standard (1,675 tons full load)
Dimensions: 195 (w.l.), 205 (o.a.)×38½×12 (mean), 15½ (max.) feet
Guns: 1—3 inch, 4—40 mm. AA., 2—20 mm. AA.
Machinery: 4 sets diesels with electric drive. B.H.P.: 3,000=16.5 kts.
Complement: 85

General
Formerly a fleet ocean tug of the "Apache" class in the U.S. Navy. Launched on 26 Feb. 1945. Fitted with powerful pumps and other salvage equipment. Transferred to Ecuador by the United States for five years lease on 2 Nov. 1960.

COTOPAXI (ex-R. T. Ellis)

Displacement: 150 tons
Dimensions: 82×21×8 feet
Machinery: Diesel. 1 shaft. B.H.P.: 650=9 kts.

General
Former American tug. Built by Equitable Building Co. Incorp. Purchased from the United States in 1947. Photograph in the 1956-57 to 1959-60 editions.

EGYPT

Administration	Personnel	Mercantile Marine
Commander-in-Chief and Chief of Staff of the Navy: Rear Admiral Soliman Izzat	1965: 11,000 officers and men, including coast guards.	Lloyd's Register of Shipping: 112 vessels of 232,824 tons gross

DESTROYERS

4+2 Ex-U.S.S.R. "Skoryi" Type

AL NASSER AL AFFER	DAMIETTE SUEZ
Displacement:	2,600 tons standard (3,500 tons full load)
Dimensions:	393½ (pp.), 420 (o.a.) x 41 x 13½ feet
Guns:	4—5.1 inch; 2—3 inch AA.; 7—37 mm. AA.
Tubes:	10—21 inch (quintupled)
A/S weapons:	4 D.C.T.
Mines:	80
Machinery:	Gearred turbines. 2 shafts. S.H.P.: 70,000=38 kts.
Boilers:	3
Radius:	4,000 miles at 15 kts.
Complement:	250

General
Former "Skoryi" class destroyers in the Soviet Navy. Launched in 1951, Al Nasser and Al Zaffer were delivered to the Egyptian Navy on 11 June 1956 at Alexandria. The implication of each name in Arabic is "victory."



SKORYI I Class

Added 1958

It was reported in Dec. 1959 that six destroyers had been or were being transferred from the U.S.S.R. to Egypt. Two were delivered at Alexandria in Jan. 1962.

Cruisers

It was reported in 1961 that Egypt was expecting to purchase two cruisers in the near future.

2 Ex-British "Z" Type

EL FATEH (ex-Zenith)		EL QAHER (ex-Myngs)			
<i>Name:</i>		<i>El Fateh</i>		<i>El Qaher</i>	
<i>Builders:</i>		Wm. Denny & Bros. Ltd., Dumbarton		Vickers-Armstrongs Ltd., Tyne	
<i>Laid down:</i>		19 May 1942		27 May 1942	
<i>Launched:</i>		5 June 1944		31 May 1943	
<i>Completed:</i>		22 Dec. 1944		23 June 1944	

Displacement:	1,730 tons standard (2,575 tons full load)
Dimensions:	362½ x 35½ x 16 (max.) feet
Guns:	4—4.5 inch d.p.; 6—40 mm. AA.
A/S weapons:	4 D.C.T.
Tubes:	8—21 inch
Machinery:	Parsons geared turbines. S.H.P.: 40,000=36.75 kts. (designed), sea speed 31.25 kts.
Boilers:	2 Admiralty 3-drum type
Oil fuel:	580 tons
Radius:	2,800 miles at 20 kts.
Complement:	250

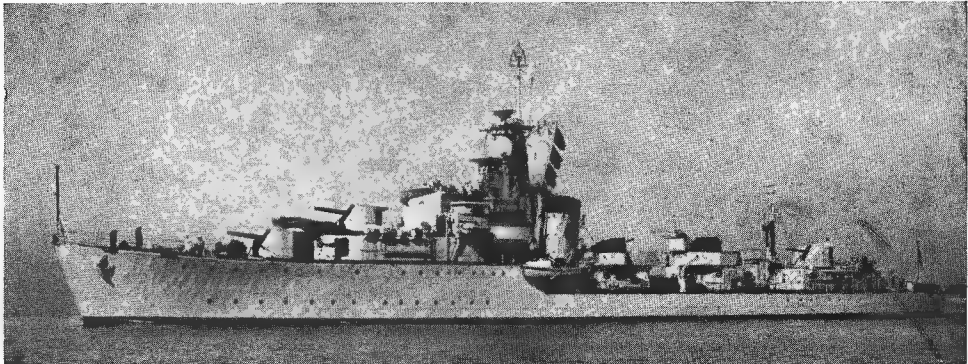
General
Former "Z" class destroyers in the British Navy. Purchased from Great Britain in 1955. Before being taken over by Egypt El Qaher was refitted by J. Samuel White & Co. Ltd., Cowes, Isle of Wight, and El Fateh refitted by John I. Thornycroft & Co. Ltd., Woolston, Southampton in July 1956.

Modernisation
Both ships were refitted and modernised by J. Samuel White & Co. Ltd., at Cowes, Isle of Wight from May 1963 until July 1964.



EL QAHER (after modernisation)

1965, courtesy J. Samuel White & Co. Ltd., Cowes



EL FATEH

Added 1956, Official

FRIGATES

1 Ex-British "Black Swan" Type

TARIK (ex-El Farouq, ex-Whimbrell)

Pennant No.:	41
Builders:	Yarrow & Co. Ltd., Glasgow
Laid down:	31 Oct. 1941
Launched:	25 Aug. 1942
Completed:	13 Jan. 1943

Displacement:	1,490 tons standard (1,925 tons full load)
Dimensions:	299½ x 38½ x 8½ feet (11 max.)
Guns:	6—4 inch. 4—40 mm., 2—20 mm. AA.
A/S weapons:	4 D.C.T.
Machinery:	Gearred turbines. 2 shafts S.H.P.: 4,300=19.75 kts. (designed), sea speed 18 kts.
Boilers:	2, of 3-drum type
Oil fuel:	370 tons
Radius:	4,500 miles at 12 kts.
Complement:	180



TARIK

1951, A. & J. Pavla

General
Former "Black Swan" class sloops (later re-rated as frigates) in the British Navy. Transferred from Great

Britain in Nov. 1949. As a flotilla leader she had a broad band painted on the funnel and a thinner flotilla band.

I Ex-British "River" Type

RASHEED (ex-Spey)

Pennant No.: 43
 Builders: Smith's Dock Co. Ltd.,
 Middlesbrough
 Laid down: 18 July 1941
 Launched: 10 Dec. 1941
 Completed: 19 May 1942

Displacement: 1,490 tons standard (2,216 tons full load)
 Dimensions: 283 (pp.), 301½ (o.a.)×36½×14 feet
 Guns: 1—4 inch, 2—40 mm. AA., 6—20 mm. AA.
 A/S weapons: 4 D.C.T.
 Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=18 kts.
 Boilers: 2 Admiralty 3-drum type
 Oil fuel: 640 tons
 Radius: 9,500 miles at 12 kts.
 Complement: 140

General

Former "River" class frigates in the British Navy. Purchased from Great Britain in Nov. 1948. Refitted by Willoughby (Plymouth), Ltd. Sailed for Egypt in Apr. 1950. Formerly mounted two four-inch guns.

Class
 Of her two sister ships *Abikir* (ex-H.M.S. *Usk*) was sunk as a blockship in the Suez Canal in Nov. 1956 (raised and dumped in Apr. 1957); and *Domiati* (ex-H.M.S. *Nith*) was sunk by the British cruiser *Newfoundland* off Suez on 1 Nov. 1956.



RASHEED

1950, Egyptian Navy, Official

I Ex-British "Hunt" Type

MOHAMED ALI (ex-Ibrahim el Awal, ex-Cottesmore)

Pennant No.: 11
 Builders: Yarrow & Co., Ltd.,
 Scotstoun, Glasgow
 Laid down: 12 Dec. 1939
 Launched: 5 Sep. 1940
 Completed: 29 Dec. 1940

Displacement: 1,000 tons standard (1,490 tons full load)
 Dimensions: 273 (pp.), 280 (o.a.)×29×14 feet
 Guns: 4—4 inch, 2—40 mm., 2—20 mm. AA., 5—2 pdr.
 A/S weapons: 2 D.C.T.
 Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 19,000=25 kts. (max.)
 Boilers: 2, of 3-drum type
 Oil fuel: 280 tons
 Radius: 2,000 miles at 12 kts.
 Complement: 146

General

Former British "Hunt" Class, Type I escort destroyer (later re-rated as frigate). Served in the British Navy from 1940. Transferred from the British Navy to the Egyptian Navy in July 1950: Sailed for Egypt in April 1951, after a nine months' refit by J. Samuel White & Co. Ltd., Cowes. She was first renamed *Ibrahim el Awal* but was renamed *Mohamed Ali el Kebir* about 1951.



MOHAMED ALI

1951, A. & J. Pavia

Class

Sister ship *Ibrahim el Awal* served in the British Navy as H.M.S. *Mendip* until 1948, when she was transferred to the Chinese Navy and renamed *Lin Fu*; she was returned to the British Navy at Hong Kong a year later and reverted to her original name, but was transferred to the Egyptian Navy in Nov. 1949, when she was first

renamed *Mohamed Ali el Kebir* but was afterwards again renamed *Ibrahim el Awal*, exchanging names with her sister ship about 1951-52. *Ibrahim el Awal* surrendered to Israeli forces off Haifa on 31 Oct. 1956; she was rehabilitated and incorporated into the Israeli Navy and renamed *Haifa* (see later page).

I Ex-British "Flower" Type

EL SUDAN (ex-Mallow, ex-Partizanka, ex-Nada, ex-Mallow)

Builders: Harland & Wolff, Ltd.,
 Belfast
 Laid down: 14 Nov. 1939
 Launched: 22 May 1940
 Completed: 2 July 1940

Displacement: 1,060 tons standard (1,340 tons full load)
 Dimensions: 190 (pp.), 205 (o.a.)×33×14½ feet (max.)
 Guns: 1—4 inch AA., 1—2 pdr., 2—20 mm. AA.
 Machinery: Triple expansion, I.H.P.: 2,750=16 kts.
 Boilers: 2 S.E.
 Oil fuel: 230 tons
 Radius: 7,000 miles at 10 kts.
 Complement: 85

General

Former "Flower" class corvettes (later re-rated as frigates) in the British Navy. Taken over by Yugoslavia in 1943 (loaned). Returned to the British Navy early in 1949 and transferred to Egypt on 28 Oct. 1949.

Class

Sister ship *Misir* (ex-S.S. *Malrouk*) was rammed and sunk by collision south of Suez 16th-17th May 1953.



EL SUDAN

1951, A. & J. Pavia

CORVETTES (ex-Fleet Minesweepers)

2 Ex-British "Bangor" Type

MATROUH (ex-Stornoway)

NASR (ex-Bude)

Name: Matrouh Nasr
 Builders: Henry Robb, Lobnitz & Co., Ltd.,
 Ltd., Leith Renfrew
 Laid down: 17 July 1940 2 Apr. 1940
 Launched: 10 June 1941 4 Sep. 1940
 Completed: 17 Nov. 1941 12 Dec. 1941

Displacement: 672 tons standard (900 tons full load)
 Dimensions: 180 (o.a.)×28½×9½ feet
 Guns: 1—4 inch, 1—3 inch, 2—40 mm. AA. (4—20 mm. in *Matrouh*)
 A/S weapons: 2 D.C.T.
 Machinery: Triple expansion, 2 shafts. I.H.P.: 2,400=16 kts. (designed) sea speed 14 kts.
 Boilers: 2 Admiralty 3-drum type
 Oil fuel: 170 tons
 Radius: 4,300 miles at 10 kts.
 Complement: 60



MATROUH

1955, Egyptian Navy, Official

General

Former "Bangor" class fleet minesweepers acquired from Great Britain. Now rated as corvettes.

Class

Sister ship *Sollum* sank in heavy weather off Alexandria on 7 Mar. 1953.

SUBMARINES**8 Ex-U.S.S.R. "W" Type**

Displacement: 1,030 tons surface, 1,180 tons submerged
 Dimensions: 240 (o.a.) \times 22 \times 15 feet
 Guns: 4—25 mm. AA.
 Tubes: 6—21 inch (4 forward, 2 aft)
 Machinery: Diesels. B.H.P.: 4,000=17 kts. surface; Electric motors. H.P.: 2,500=15 kts. submerged
 Radius: 13,000 miles
 Complement: 60

General

The first units were transferred from the Soviet Navy to the Egyptian Navy in June 1957. Three more arrived at Alexandria on 24 Jan. 1958. Another was transferred by the U.S.S.R. to Egypt at Alexandria in Jan. 1962.

1 Ex-U.S.S.R. "MV" Type

Displacement: 350 tons surface, 420 tons submerged
 Dimensions: 167 $\frac{1}{2}$ \times 16 \times 12 feet
 Guns: 1—45 mm. AA., 1 M.G.
 Tubes: 2—21 inch
 Machinery: Diesels. B.H.P.: 1,000=13 kts., surface. Electric motors. H.P.: 800=10 kts. submerged
 Radius: 4,000 miles at 8 kts.
 Complement: 24

General

Launched in 1950. Transferred from the U.S.S.R. to Egypt in June 1957.

New Construction

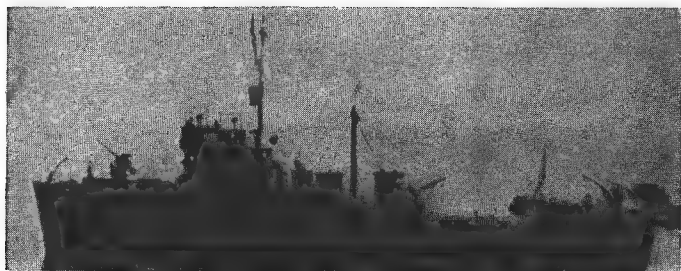
On 30 Aug. 1963 the Commander-in-Chief said that experiments in the first submarine to be built in Egypt had been successfully completed.

FLEET MINESWEEPERS**6 Ex-U.S.S.R. "T 43" Type**

BAHAIRA	CHARKIEH	GARBIA	MINIYA
Displacement:	410 tons standard	530 tons full load	
Dimensions:	200 \times 27 $\frac{1}{2}$ \times 9 feet		
Guns:	4—37 mm. AA.		
Machinery:	Diesel=18 kts.		

General

Four reported to have been transferred from the Soviet Navy and delivered to Egypt in 1956, and two others later.

COASTAL MINESWEEPERS

ARISH

Official

6 Ex-U.S. BYMS Type

ARISH (ex-BYMS 2028)	MALEK FUAD (ex-BYMS 2035)
KAISARIA (ex-BYMS 2075)	NAHARIA (ex-BYMS 2069)
KORDOFAN (ex-BYMS 2212)	RAFAH (ex-BYMS 2149)
Displacement:	215 tons standard (270 tons full load)
Dimensions:	136 (o.a.) \times 24 $\frac{1}{2}$ \times 6 feet
Guns:	1—3 inch (except Rafar and Tor), 2—20 mm. AA
Machinery:	Diesel. B.H.P.: 1,000=13 kts.
Oil fuel:	16 tons

General

All single-funnelled except Arish, which has 2 funnels as shown. One named Gaza (ex-BYMS 2013) was lost on 26 July 1950, as a result of fuel-tank explosion off Mersa Matrouh. Sister ships Darfour (ex-BYMS 2041) and Tor (ex-BYMS 2175) were transferred to the Algerian Navy on 6 Nov. 1962.

INSHORE MINESWEEPERS**2 Ex-U.S.S.R. "T 301" Type**

Displacement: 130 tons standard (180 tons full load)
 Dimensions: 100 \times 16 \times 4 $\frac{1}{2}$ feet
 Guns: 2—37 mm. AA., 2—25 mm. AA.
 Machinery: Diesels, 2 shafts. B.H.P. 480=10 kts
 Complement: 30

General

Reported to have been transferred by the U.S.S.R. to Egypt in 1962.

SUBMARINE CHASERS**3 Ex-U.S.S.R. "S.O.I." Type**

Displacement: 215 tons light, 220 tons normal
 Dimensions: 138 (pp.), 147 (o.a.) \times 20 \times 10 (max.) feet
 Guns: 4—25 mm. (2 twin mountings)
 A/S weapons: 4 five-barrelled ahead throwing rocket launchers
 Machinery: 3 diesels. B.H.P.: 3,500=28 kts.

General

Reported to have been transferred by the U.S.S.R. to Egypt in 1962.

LANDING CRAFT

No. 1	No. 4	No. 7	No. 10	No. 13	No. 17
No. 2	No. 5	No. 8	No. 11	No. 14	No. 18
No. 3	No. 6	No. 9	No. 12	No. 16	No. 19
Displacement:	22 tons light (35 tons loaded)				
Machinery:	Speed=11 kts.				

General

Of LCM type. (The tank landing ship Aka (ex-LST 178) was sunk as a block-ship near Lake Timsah in the Suez Canal on 1 Nov., 1956)

MOTOR GUNBOATS**3 Ex-U.S.S.R. "Komar" Class Guided Missile Patrol Boats**

Displacement: 75 tons standard (100 tons full load)
 Dimensions: 88 (o.a.) \times 21 \times 6 feet
 Guided weapons: 2 launchers with missiles of 10 to 15 nautical miles range
 Machinery: Speed=40 kts.

General

Former Soviet motor gunboats reported transferred from the U.S.S.R. in 1962.

New Construction

A patrol boat named Nisir 2, 110 tons, is reported to have been launched at Port Said on 16 May 1963 by the Castro Naval Shipyard.

MOTOR TORPEDO BOATS**36 Ex-U.S.S.R. "PA" Type**

Displacement: 50 tons
 Dimensions: 85 $\frac{1}{2}$ \times 20 \times 6 feet
 Guns: 4—25 mm. AA. M.G.
 Tubes: 2—21 inch
 Machinery: Speed=42 kts.

General

The first twelve boats were reported to have arrived at Alexandria on 19 Apr. 1956. Two E-boats were destroyed by British naval aircraft on 4 Nov. 1956.

The above particulars refer to the early arrivals. Six former Soviet motor torpedo boats of the "P6" class are reported to have been transferred by the U.S.S.R. in 1960. See particulars in the U.S.S.R. section.

6 Ex-Yugoslavian Type

Displacement: 56 tons full load
 Dimensions: 78 \times 20 $\frac{1}{2}$ \times 5 $\frac{1}{2}$ feet
 Guns: 1—40 mm. AA.
 Tubes: 4
 Machinery: 3 Packard motors, 3 shafts. B.H.P.: 4,500=35 kts.
 Complement: 17

General

Purchased from Yugoslavia in 1956. Similar to United States Higgins boats.



EL NASER

1955, Egyptian Navy, Official

2 Ex-British "D" Type**EL NASER**

Displacement: 100 tons
 Dimensions: 115 \times 21 $\frac{1}{2}$ \times 5 feet
 Guns: Several light AA.
 Tubes: 4—18 inch tubes
 Machinery: 4 Packard engines. B.H.P.: 5,000=27.5 kts.
 Complement: 30

EL ZAFER**General**

Fairmile "D" type. Acquired from Great Britain. Reported to be for disposal

MOTOR LAUNCHES**3 Ex-British "B" Type****HAMZA** (x-ML 134)**SAB EL BAHR****SAKER EL BAHAR**

Displacement: 65 tons
 Dimensions: 112 \times 18 $\frac{1}{2}$ \times 4 $\frac{1}{2}$ (max.) feet
 Guns: 1—40 mm., 2—20 mm. AA.
 Machinery: 2 Hall-Scott Defender engines, 2 shafts.
 B.H.P.: 1,200=19 kts.

General

Fairmile "B" Type. Acquired from Great Britain. Nos. 251, 252 and 253.

TRANSPORT**EL QUSEIR** (ex-El Amira Fawzia)

Displacement: 2,640 tons
 Dimensions: 275 \times 36 \times 14 feet
 Guns: 2—3 pdr.
 Machinery: Triple expansion, 2 shafts. I.H.P.: 2,130=14 kts.
 Boilers: 2 S.E. (working pressure, 180 lb.). Oil fuel
 Complement: 79

General

Built by Swan, Hunter & Wigham Richardson, Ltd., Wallsend. Launched on 8 July 1929. Mercantile type. Fitted as transport for 400 men and 40 horses. Normally employed on coasting service carrying passengers. Pennant No. 91.

YACHTS**NTISAR** (ex-Fakhr el Bihar)

Displacement: 1,069 tons

EL HORRIA (ex-Mahroussa)

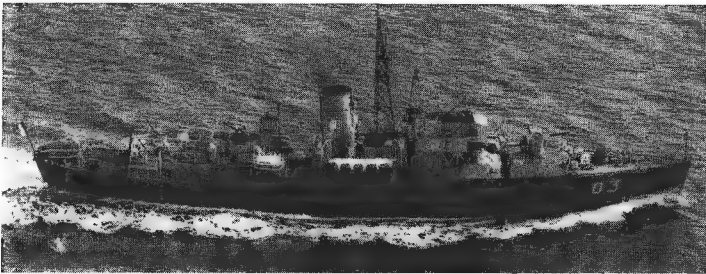
Displacement: 4,561 tons
 Dimensions: 400 (pp.), 420 (w.l.), 477 (o.a.) \times 42 $\frac{1}{2}$ \times 17 $\frac{1}{2}$ feet
 Machinery: 3 Parsons turbines, 3 shafts. S.H.P.: 5,500=16 kts.
 Boilers: 5 main and 1 auxiliary Inglis multi-tubular
 Oil fuel: 346 tons
 Complement: 179+59 midshipmen

General

Built of iron by Samuda Bros., Poplar. Launched in 1865. Reconstructed by A. & J. Inglis, Glasgow, and re-boilered 1905, and refitted in 1946-47 at Malta Dockyard. Reconstructed 1949-50 at Odero-Terni, Muggiano, at a cost of over £1,250,000. Former Royal Yacht. Offered for sale in 1954, but visited Great Britain as a midshipmen's training ship, May-June 1955.

EIRE

CORVETTES



CLIONA

1963, Irish Navy, Official

3 Ex-British "Flower" Class

Name	Pennant No.	Laid down	Launched	Completed
CLIONA (ex-H.M.S. Bellwort)	02	17 Sep. 40	11 Aug. 41	26 Nov. 41
MACHA (ex-H.M.S. Borage)	03	21 Nov. 40	6 Nov. 41	29 Apr. 42
MAEV (ex-H.M.S. Oxlip)	01	9 Dec. 40	28 Aug. 41	28 Dec. 41

Displacement: 1,020 tons standard (1,280 tons full load)
Dimensions: 190 (pp.), 205 (o.a.) × 33 × 14½ feet
Guns: 1—4 inch, 1—2pdr., 2—20 mm. AA.
A/S weapons: Hedgehog, 2 D.C. racks
Machinery: Triple expansion, I.H.P.: 2,750=16 kts. (designed), best sea speed now 10 to 14 kts.
Boilers: 2 S.E.
Oil fuel: 230 tons
Complement: 78

Construction
Formerly British "Flower" class corvettes. Purchased from Great Britain in 1946. The lattice mast was stepped in 1953. *Cliona* and *Macha* were built by George Brown & Co. (Marine) Ltd., Greenock and *Maev* by A. & J. Inglis Ltd., Pointhouse, Glasgow. *Cliona* and *Maev* underwent alterations in 1958 and 1959 respectively.

TENDERS

JOHN ADAMS

Measurement: 94 tons gross
Dimensions: 85 × 18½ × 7 feet
Machinery: Diesel. B.H.P.: 125=8 kts.

Construction

Built by Richard Dunston, Ltd., Thorne, Doncaster, Yorks. Launched in 1934.

GENERAL MCHARDY

Measurement: 100 tons gross
Dimensions: 76½ × 18 × 9½ feet
Machinery: Compound reciprocating. I.H.P.: 200=9 kts.

Construction

Built by Philip & Son, Ltd., Dartmouth, Devon. Launched in 1928. Ferry tender.

WYNDHAM

Measurement: 93 tons gross
Dimensions: 85 × 16½ × 8 feet
Machinery: Compound reciprocating. I.H.P.: 200=9 kts.

Construction

Built by Cox, Falmouth. Launched in 1903. Ferry tender and general utility craft.

EL SALVADOR

PATROL BOATS

GC 1 (ex-Fle-Ja-Lis)

Displacement: 46 tons
Dimensions: 72 (o.a.) × 16 × 5½ feet
Guns: 1—20 mm.
Machinery: 2 diesels, 2 shafts. Speed=12 kts.
Complement: 16

GC 2 (ex-Nohaba)

General

Former British HDML type motor launches. Purchased from commercial sources in 1959.

ETHIOPIA

Imperial Ethiopian Navy

The Imperial Ethiopian Navy was founded in 1955. Norwegian officers have assisted in its training and organisation.

At "Haile Selassie I" Naval Base in Massawa are the Naval College, established in 1956, the Frogman/Diving School, and the Marine Command Training School. The Naval School for Petty Officers and ratings is at Embaticalla. Workshops and other Base facilities have been constructed in Massawa.

Administration

The Imperial Ethiopian Navy is one of the three Services under the Chief of Staff Imperial Armed Forces. The Deputy Commander of the Imperial Ethiopian Navy has his Naval Headquarters in Addis Ababa.

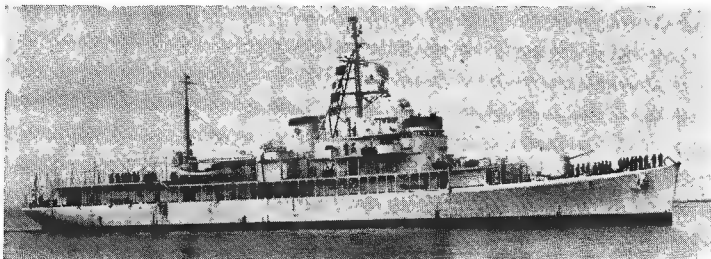
Deputy Commander of the Imperial Ethiopian Navy:
Commander H.I.H. Prince Alexander Desta.
Vice to Deputy Commander: Colonel Mebratu Fisseha.
Chief Naval Adviser: Captain B. Bjorkhaug, R. No. N.

Personnel

1965: 150 National officers and cadets. 780 National Enlisted men.

Ethiopia—continued

TRAINING SHIP



ETHIOPIA

1964, Wright & Logan

ETHIOPIA (ex-U.S.S. Orca, AYP 49)

Displacement: 1,766 tons standard (2,800 tons full load)
Dimensions: 300 (w.l.), 310½ (o.a.) × 41 × 13½ (max.) feet
Guns: 1—5 inch, 38 cal., 5—40 mm. AA. (but guns vary)
Machinery: 2 sets diesels, 2 shafts. B.H.P.: 6,080=18.2 kts.
Complement: 215

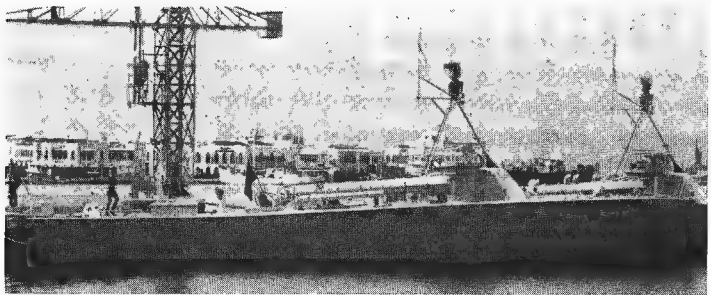
General

Former United States seaplane tender. Built by Lake Washington Shipyard, Houghton, Wash. Laid down 13 July 1942, launched on 4 Oct. 1942 and completed on 23 Jan. 1944. Transferred from the U.S. Navy to the Imperial Ethiopian Navy at the end of 1961. She serves as a training ship. Pennant No. A Ol.

Disposal

It was officially stated that the Imperial Yacht *Brioni* was returned to Yugoslavia in Feb. 1959.

MOTOR TORPEDO BOATS



SHARK (Barracuda behind)

1963, Imperial Ethiopian Navy, Official

BARRACUDA P 22

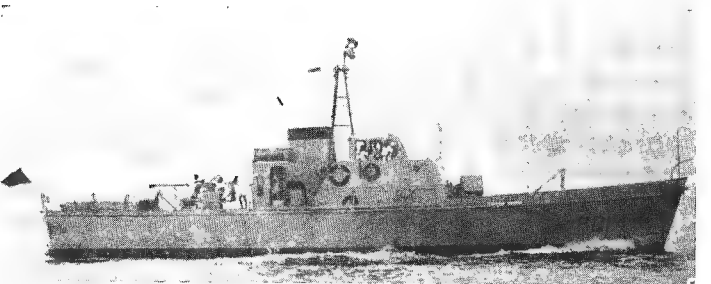
Displacement: 60 tons
Dimensions: 69 (pp.), 78 (o.a.) × 21½ × 7 feet
Guns: 1—40 mm. AA., 2—12.7 mm. M.G.
Tubes: 2
Machinery: 3 Packard petrol motors. Speed 40 kts.-
Complement: 17

SHARK P 21

General

Former Yugoslavian motor torpedo boats built late in 1951. Transferred and received by Ethiopia in Jan. 1960, and given fish names.

PATROL BOATS



PC 14

1962, Imperial Ethiopian Navy, Official

PC 11 (ex-U.S.C.G. WVP 95304)

PC 12 (ex-U.S.C.G. WVP 95310)

Displacement: 101 tons
Dimensions: 95 (o.a.) × 19 × 5 feet
Guns: 1—40 mm. AA.
Machinery: 4 diesels, 2 shafts. B.H.P.: 2,200=21 kts.
Radius: 1,500 miles at cruising speed
Complement: 15

PC-13 (ex-U.S.N. PGM 53)

PC 14 (ex-U.S.N. PGM 54)

PC 15 (ex-U.S.N. PGM 58)

General

WVP 95304 and WVP 95310 are former United States Coast Guard Cutters. Transferred to the Imperial Ethiopian Navy from the U.S. Navy under the Mutual Defense Assistance Program in 1958. Ex-PGM 53 and Ex-PGM 54 are motor gunboats of the same 95 ft. United States Coast Guard type built by Petersen Builders for transfer under the Military Aid Programme in July and Aug. 1961. Ex-PGM 58 was transferred to the Imperial Ethiopian Navy under the Military Aid Programme in June 1962. All are steel-hulled and twin-screwed.

LANDING CRAFT

General

There are 2 landing craft of the U.S. LCM type and 2 of the U.S. LCVP type, all acquired in 1963.

FINLAND

Administration

Commander-in-Chief, Finnish Navy:
Rear-Admiral O. Lennes.

Naval Attaché in London:
Captain J. Erik T. Helenius, F.N.

Naval Attaché in Washington:
Colonel Unto O. Mielonen.

The Finnish Navy is limited by treaty with the U.S.S.R. to 10,000 tons of ships and 4,500 personnel, including Coast Guard and Coast Artillery. Submarines and motor torpedo boats are prohibited.

Personnel

1965: 1,500 officers and ratings

Mercantile Marine

Lloyd's Register of Shipping:
411 vessels of 964,275 tons gross

FRIGATES

2 Ex-Soviet "Riga" Class

HÄMEENMAA	UUSIMAA
Displacement:	1,350 tons (official figures)
Dimensions:	278½ (pp.), 295½ (o.a.)×32½×11 feet
Guns:	3—3.9 inch d.p. (single); 4—37 mm. AA.
Tubes:	3—21 inch
A/S weapons:	4 depth charge projectors
Mines:	50
Machinery:	Geared turbines. 2 shafts. S.H.P.: 25,000=28 kts.
Boilers:	2
Complement:	150

Transfer
Former Soviet frigates of the "Riga" class. Purchased from the Soviet Union, and delivered to the Finnish Navy in spring 1964.



UUSIMAA

1964, Finnish Navy, Official

MATTI KURKI (ex-H.M.S. Porlock Bay, ex-Loch Seaforth, ex-Loch Muick)

Builders:	Charles Hill & Sons, Ltd., Bristol
Laid down:	22 Nov. 1944
Launched:	14 June 1945
Completed:	8 Mar. 1946
Displacement:	1,580 tons standard (2,420 tons full load)
Dimensions:	286 (pp.), 307½ (o.a.)×38½×15½ feet
Guns:	4—4 inch, 6—40 mm. AA.
A/S weapons:	1 Squid
Machinery:	Triple expansion. 2 shafts I.H.P.: 5,500=19 kts.
Boilers:	2 Admiralty 3 drum
Oil fuel:	724 tons
Radius:	9,500 miles at 12 kts.

Transfer
Former British frigate of the "Bay" class. Transferred from the Royal Navy to the Finnish Navy in March 1962.



MATTI KURKI

1963, Finnish Navy, Official

COASTAL MINELAYERS (Miinalaivat)



KEIHASSALMI

1960, Finnish Navy, Official

KEIHASSALMI

Displacement:	360 tons
Dimensions:	183½ × 25½ × 6 feet
Guns:	2—40 mm. AA.; 2—20 mm. AA.
Mines:	100
Machinery:	2 M.A.N. diesels. 2 shafts. B.H.P.: 1,600=15 kts.
Complement:	60

Construction
A coastal minelayer of improved "Ruotsinsalmi" type built at Valmet Oy Shipyard, Helsinki, under contract dated June 1955. Launched on 16 Mar. 1957.



RUOTSINSALMI

1963, Finnish Navy, Official

RUOTSINSALMI

Displacement:	310 tons
Dimensions:	164½ × 26 × 5 feet
Guns:	2—40 mm. AA., 2—20 mm. AA.
Mines:	100
Machinery:	2 Rateau diesels. 2 shafts. B.H.P.: 1,120=15 kts.
Complement:	60

Construction
Built by Hietalahden Laivatelakka. Laid down in 1937. Launched in May 1940. Completed in Feb. 1941.

FAST PATROL BOATS (Nopeat vartioveneet)



NUOLI 6 1965, Finnish Navy, Official



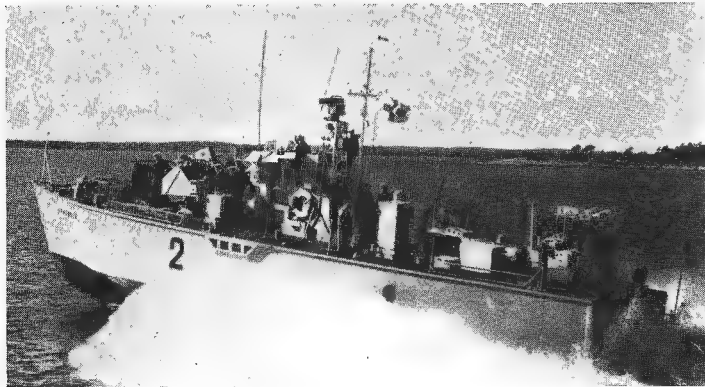
NUOLI 1 1962, Finnish Navy, Official

II "Nuoli" Class

NUOLI 1	NUOLI 3	NUOLI 5	NUOLI 7	NUOLI 9
NUOLI 2	NUOLI 4	NUOLI 6	NUOLI 8	NUOLI 10
				NUOLI 11

Displacement: 45 tons
Dimensions: 72½ × 21½ × 5 feet
Guns: 1—40 mm., 1—20 mm. AA.
Machinery: 3 diesels. B.H.P. 2,700—40 kts.

Construction
Designed and built by Suomen Laivasteollisuus Oy, Turku. First four were launched in 1961 five more in 1962, and two more in 1963.



VASAMA 2 1963, Finnish Navy, Official

2 "Vasama" Class

VASAMA 1	VASAMA 2
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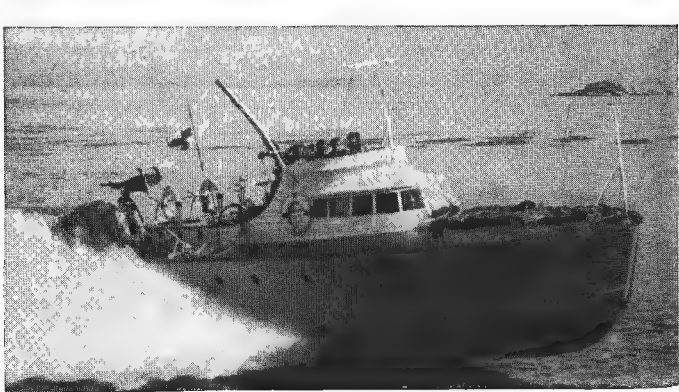
Displacement: 70 tons
Dimensions: 67 (pp.) 71½ (o.a.) × 19½ × 6 feet
Guns: 2—40 mm. AA.
Machinery: 2 Napier Deltic diesels. B.H.P.: 5,000=42 kts.
Complement: 13

Construction
British "Dark" type built by Saunders Roe (Anglesey) Ltd., Beaumaris, England, in 1955-57. A photograph of Vasama 1 appears in the 1957-58 to 1962-63 editions.

Disposals
The former Italian fast patrol boats Hurja 1, Hurja 2, Hurja 3, Hurja 4 and Hurja 5 have been scrapped, it was officially stated in 1963.

The old fast patrol boats JVMV 1, JVMV 2, JVMV 3 and JVMV 4, formerly MAS 526, MAS 527, MAS 528 and MAS 529, were officially stricken from the list in 1961.

Fast Patrol Boats—continued



TAISTO 4 1957, Official

4 "Taisto" Class

TAISTO 3	TAISTO 6	TAISTO 7	TAISTO 8
----------	----------	----------	----------

Displacement: 22 tons
Dimensions: 59 × 15½ × 5 feet
Guns: 1—40 mm., 1—20 mm.
Machinery: Speed: 42 kts.

Construction
All launched in 1943. Ex-M 3, 6, 7, 8. Designed and built under Italian licence by Turun Veneveistämo, Finland.

Disposals
Taisto, 2, Taisto 4 and Taisto 5 were scrapped in 1963, it is officially stated.

CORVETTES

2 New Construction

Displacement: circa 600 tons
Dimensions: 228½ × 26½ feet
Guns: 1—4.7 inch automatic d.p. forward; 2—40 mm. AA. (single) aft
A/S weapons: Depth charge projectors
Machinery: CODAG (combined diesel and gas turbine). Bristol Siddeley Olympus gas turbine. H.P.: 22,000

General
Fast gunboats for trade protection ordered by the Finnish Navy on 23 Feb. 1965 from Sandvikens Skeppsdocka. Wärtsilä-konsernen A/B, Helsinki. Flush decked, raked bow, simple and clean superstructure. Rocket flare guide rails on sides of 4.7 inch turret.

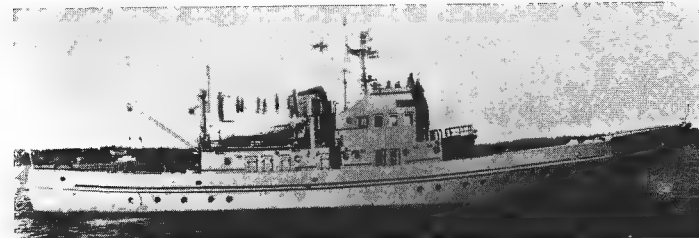
COAST GUARD PATROL VESSELS (Vartioalukset)



SILMA 1964, Finnish Navy, Official

SILMA
Displacement: 490 tons
Dimensions: 161 × 26 × 12 feet
Machinery: B.H.P.: 1,800—13 kts.

Construction
Coast guard vessel built by Suomen Laivasteollisuus Oy, Turku, in 1962-63.



UIKO 1964, Finnish Navy, Official

UIKO
Displacement: 350 tons
Dimensions: 130 × 22 × 13 feet
Machinery: B.H.P.: 1,800—14 kts.

Construction
Coast guard patrol vessel built by Valmet Oy, Helsinki. Launched in 1958. Completed in 1959.

Coast Guard Patrol Vessels—continued

TURSAS

Displacement: 360 tons
Dimensions: 131½ × 23½ × 14 feet
Guns: 1—3 inch, 1—40 mm. AA., 2—20 mm. AA.
Machinery: Diesel, B.H.P.: 620—12 kts.

General Built by Crichton-Vulkan. Launched in 1933. Coast Guard vessel under the Ministry of the Interior. A photograph of Tursas appears in the 1954-55 to 1963-64 editions.

AURA

Displacement: 350 tons
Dimensions: 128 × 23 × 11½ feet
Guns: 1—3 inch, 2—20 mm. AA.
Machinery: Triple expansion, I.H.P.: 700—10 kts.

General Launched in 1907. This vessel belongs to the Coast Guard, which is under the Ministry of the Interior.

Disposals The coast guard vessel Merikotka was officially deleted from the list in 1960.

MOTOR PATROL BOATS (Vartiomoottoriveneet)



VIIMA 1965, Finnish Navy, Official

VIIMA

Displacement: 130 tons
Dimensions: 117½ × 21½ × 7½ feet
Guns: 1—20 mm. AA.
Machinery: 3 engines, B.H.P.: 4,050=25 kts.

Construction Coast guard patrol boat built by Suomen Laivateollisuus Oy Ab, Turku, Finland in 1964.



TAVI 1964, Finnish Navy, Official

8 "Koskelo" Class

KAARKURI KIILSA	KOSKELO KUOVI	TELKKA KUIKKA	KURKI TAVI
Displacement: 75 tons standard (97 tons full load)			
Dimensions: 96½ × 18½ × 3½ feet			
Guns: 2—20 mm. AA.			
Machinery: 2 Mercedes-Benz diesels, 2 shafts, B.H.P.: 1,000=16 kts.			
Complement: 8			

Construction Built of steel and strengthened against ice, Koskelo and Kuikka were completed in 1956. Remaining six were completed in 1958-60. A photograph of Koskelo appears in the 1957-58 to 1963-64 editions.

2 "SP" Class

VMV 19	VMV 20
Displacement: 35 tons (officially revised figure)	
Dimensions: 69 × 13½ × 4 feet	
Guns: 1—20 mm.	
Machinery: Speed: 11 kts.	

General Built in Finland. Launched in 1943. Ex-Motor launches SP 41, 42, VM 18 (ex-SP 1) was stricken from the list in 1958.

2 VMV Class

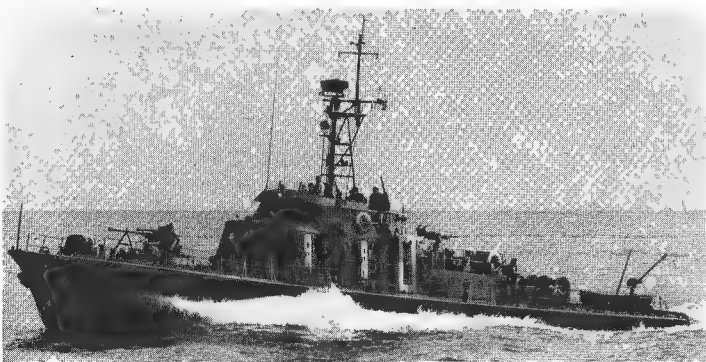
VMV 11	VMV 13
Displacement: 35 tons (officially revised figure)	
Dimensions: 82 × 13½ × 3½ feet	
Guns: 1—20 mm.	
Machinery: Semi-diesel, B.H.P.: 1,200=25 kts.	
Complement: 9	

General Built in Finland. Launched in 1935. All the above motor patrol boats (Viima, "Koskelo" class, and VMVs) belong to the Coast Guard which is under the Ministry of the Interior.

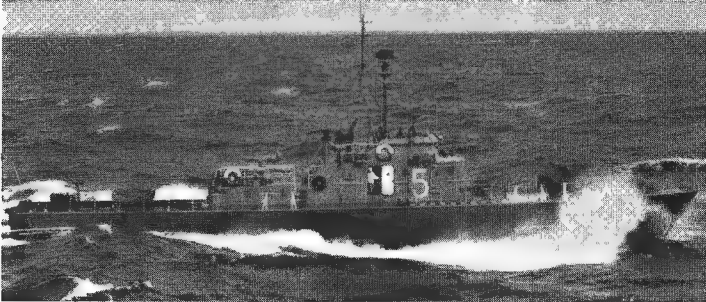
Disposals VMV 1, VMV 2 were sold in 1952. VMV 5 was scrapped in 1958. VMV 6 was scrapped in 1960 and VMV 9 in 1961. VMV 15 and VMV 16 were officially deleted from the list in 1965.

The motor launches NV 1, NV 2, NV 3, NV 4, NV 5, NV 6 NV 7, NV 8, NV 9 and NV 10, were officially deleted from the list in 1963.

INSHORE MINESWEEPERS (Raivoajat)



RAISIO 1965, Finnish Navy, Official



ROYTTA 1962, Finnish Navy, Official

5 "R" Class

RAISIO	RIHTNIEMI	RÖYTÄ	RUISSALO	RYMÄTTYLÄ
Displacement: 110 tons standard (130 tons full load)				
Dimensions: 108½ × 18½ × 6 feet				
Guns: 1—40 mm. Bofors, 1—20 mm. Masden				
Machinery: 2 Mercedes-Benz diesels, B.H.P.: 1,400=15 kts.				

Construction Rihtniemi and Rymättylä were ordered in July 1955 and launched in 1956. Built by Rauma-Repela Oy, Shipyard, Rauma, Finland. Delivered on 20 May 1957. Variable pitch propellers. Raisio, Röyttä and Ruissalo were built by Laivateollisuus, Turku, in 1959. A photograph of Rymättylä appears in the 1960-61 to 1963-64 editions.

Disposals (Coastal Minesweepers) Of the four ex-U.S. BYMS type coastal minesweepers, Tammenpää and Vahterpää were sold for scrap in 1958. Purunpää was discarded as unfit for further service in 1959, and Katanpää was scrapped in 1960.

Disposals (Motor Minesweeping Boats) The motor minesweeping boat Kallanpää was scrapped in 1963, and her-sister ship Ajonpää was scrapped in 1959.

Of the motor minesweeping boats of the "Kuha" class, Kuha 2, Kuha 5, Kuha 7, Kuha 8, Kuha 12, Kuha 13, Kuha 14, Kuha 15, Kuha 16, Kuha 17 and Kuha 18 were scrapped in 1963, Kuha 10 and Kuha 11 were scrapped in 1961, and Kuha 1, Kuha 4 and Kuha 9 were scrapped in 1959-60.

Of the motor minesweeping boats of the "Ahven" class, Ahven 2, Ahven 3, Ahven 4 and Ahven 6 were scrapped in 1963. Ahven 1 and Ahven 5 were scrapped in 1961.

ICEBREAKERS (Jäänmurtaajat)

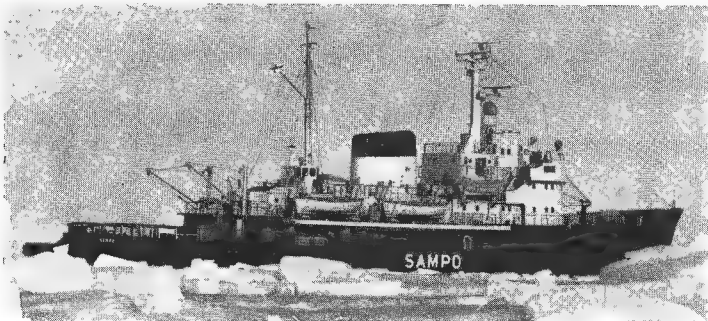


TARMO 1965, Finnish Navy, Official

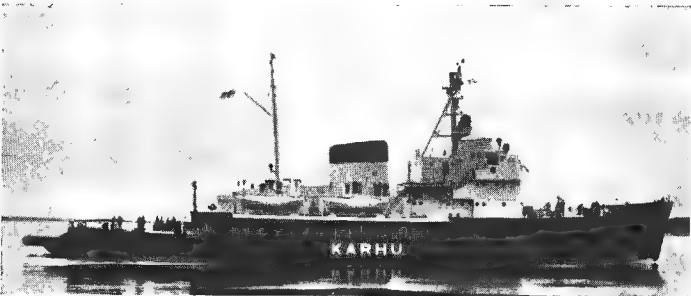
TARMO
Displacement: 4,890 tons (officially revised figure)
Dimensions: 281 × 71 × 21 feet
Machinery: Wärtsilä-Sulzer diesels, electric drive, 4 shafts, S.H.P.: 12,000=16.5 kts.

Construction Built by Wärtsilä-yhtymä O/Y Hietalahden Laivatelakka, Helsinki. Completed in 1963.

Icebreakers—continued



SAMPO 1963, Finnish Navy, Official



KARHU 1959, Official

3 "Karhu" Class

KARHU MURTAJA SAMPO

Displacement: 3,370 tons
Dimensions: 243½ × 57 × 20 feet
Machinery: Diesel-electric, 4 shafts. B.H.P.: 7,500=16 kts.

Construction

Built by Wärtsilä-yhtymä O/Y Hietalahden Laivatelakka, Helsinki. Karhu was launched on 22 Oct. 1957, and completed at the end of 1958. Murtaja (photograph in the 1962-63 edition) was launched on 23 Sep. 1958. Sampo was completed in 1960.



VOIMA 1965, Finnish Navy, Official

VOIMA
Displacement: 4,200 tons
Dimensions: 254½ (w.l.), 274 (o.a.) × 63½ (61½ w.l.) × 20½ feet
Machinery: Diesels with electric drive, 4 shafts. B.H.P.: 14,000=16½ kts.
Oil fuel: 740 tons
Complement: 73

General

Built by Hietalahden telakka. Launched and completed in 1953. Built for deep-sea work. Two propellers forward and aft. Transferred to the Board of Navigation in 1956.



SISU 1964, Finnish Navy, Official

SISU
Displacement: 2,000 tons
Dimensions: 194½ (w.l.), 210½ (o.a.) × 46½ × 16½ feet
Guns: 2—3.9 inch AA.
Machinery: 3 sets Atlas Polar Diesels with electric drive, 2 shafts and a bow propeller. H.P.: 4,000=16 kts.
Complement: 100

Construction

Built by Hietalahden telakka. Launched on 24 Sep. 1938.

Icebreakers—continued

OTSO

Displacement: 900 tons
Dimensions: 134½ (pp.), 144½ (o.a.) × 37½ × 16½ feet
Machinery: Triple expansion, with bow propeller. I.H.P.: 1,860=13 kts.
Oil fuel: 60 tons

General

Launched in 1936. Belongs to the town of Helsinki. Photograph in the 1953-54 and earlier editions.

APU (ex-Tarmo, ex-Sampo II)

Displacement: 2,400 tons
Dimensions: 210½ (w.l.), 220 (o.a.) × 47 × 18½ feet
Machinery: Triple expansion, 2 shafts. I.H.P.: 3,850=12 kts.
Complement: 43

General

Built by Armstrong & Co. Ltd., Newcastle-on-Tyne. Launched in 1907. (Her name was changed when Sampo and Tarmo were allocated successively as names for new icebreakers). A photograph of this ship (as Tarmo) appears in the 1958-59 to 1963-64 editions.

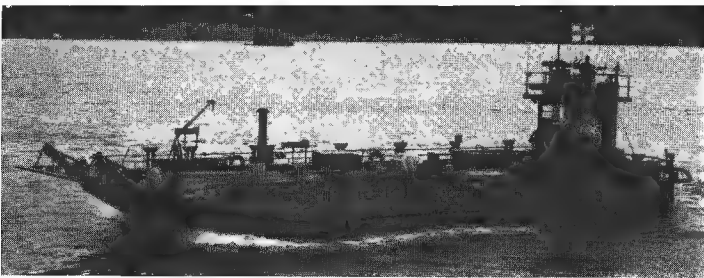
Administration

All the above icebreakers belong to the Board of Navigation, except the Otso, which belongs to the town of Helsinki.

Disposals

The old and less powerful icebreakers Apu and Murtaja were scrapped in Spring 1959 and 1958, respectively. The old icebreaker Sampo was scrapped in 1961.

TRANSPORT CRAFT (Kuljetusalukset)



KALA 6 1963, Finnish Navy, Official

6 "Kala" Class (Landing Craft Type)

KALA 1 KALA 2 KALA 3 KALA 4 KALA 5 KALA 6

Displacement: 60 tons
Dimensions: 76½ × 26½ × 6 feet
Machinery: 2 diesels. B.H.P.: 370=9 kts.

General

Launched in 1956. Completed in 1959. Of LCU (utility landing craft) type. Officially classed as transport craft. A photograph of Kala 2 appears in the 1959-60 to 1962-63 editions.

SEILI

Displacement: 180 tons
Dimensions: 100 feet length
Guns: 1—4.1 inch (105 mm). Cmex Obuchov
Machinery: Speed=10 kts.

General

Former German MFP type landing craft converted and armoured. Launched in 1942. Lonna was scrapped in 1963, it is officially stated.

3 "Pansio" Class (Tug-Type)

PANSIO (1947) PORKKALA (1940) PUKKIO (1929)

Displacement: 162 tons
Dimensions: 92 × 21½ × 9 feet
Guns: 1—40 mm., 1—20 mm. AA.
Machinery: Diesel. B.H.P.: 300=10 kts.

General

Built at Naval Dockyard, Helsinki. Launch dates above. Vessels of the tug type used as transports, minesweeping tenders, minelayers and patrol vessels. Can carry 20 mines. A photograph of Porkkala appears in the 1962-63 edition.

Training Ship

It was officially stated in 1960 that the training ship Suomen Joutsen (ex-Oldenburgh ex-Laennec) has been converted into a stationary seamen's school ship, and sold to the Finnish Mercantile School.

TUGS (Hinaajat)

3 "Pirttisaari" Class

PIRTTISAARI (ex-DR 7) PYHTÄÄ (ex-DR 2) PURHA (ex-DR 10)

Displacement: 150 tons (officially revised figure)
Dimensions: 69 × 20 × 8½ feet
Guns: 1—20 mm.
Machinery: Speed=8 kts.

General

Former United States Army Tugs. Launched in 1943-44. General purpose vessels used as minesweepers, minelayers, patrol vessels, tenders, tugs or personnel transports. DR 2 and DR 7 were adapted as the Coast Artillery transports Phytää and Pirttisaari in 1958 and 1959, respectively. A photograph of Phytää (DR 2) appears in the 1953-54 to 1962-63 editions.

FRANCE

PENNANT NUMBERS

D = Destroyers (*Escorteurs d'Escadre*
and *Escorteurs Rapides*)F = Frigates (*Escorteurs and Avisos*)
S = Submarines (*Sous-marins*)P = Patrol Vessels (*Patrouilleurs*)
M = Minesweepers (*Drageurs*)L = Landing Ships
A = Auxiliaries

D Flag Superior:	S Flag Superior	M Flag Superior:	M Flag Superior—continued
621 Surcouf 622 Kersaint 623 Cassard 624 Bouvet 625 Dupetit Thouars 626 Chevalier Paul 627 Maillé Brézé 628 Vauquelin 629 D'Estrées 630 Du Chayla 631 Casabianca 632 Guépratte 633 Duperré 634 La Bourdonnais 635 Forbin 636 Tartu 637 Jauréguiberry 638 La Galissonnière	603 L'Artémis 613 Roland Morillot 631 Narval 632 Marsouin 633 Dauphin 634 Requin 635 Aréthuse 636 Argonaute 637 Espadon 638 Morse 639 Amazone 640 Ariane 641 Daphné 642 Diane 643 Doris 644 Eurydice 645 Flore 646 Galatée 647 Minerve	609 Narvik 610 Ouistreham 612 Alençon 613 Berneval 614 Bir Hacheim 615 Cantho 616 Dompierre 617 Garigliano 618 Mytho 619 Vinh-long 620 Berlaumont 621 Origny 622 Autun 623 Baccarat 624 Colmar 631 Pavot 632 Pervenche 633 Pivoine 634 Renoncule 635 Réséda 638 Acacia 639 Acanthe 640 Aconit 667 Ajonc 668 Azalée 669 Begonia 670 Bleuet 671 Camélia 672 Chrysanthème 673 Coquelicot 674 Cyclamen 675 Eglantine 676 Gardénia 677 Giroflée 678 Glaieul 679 Glycine 680 Jacinthe 681 Laurier 682 Lilas 683 Liseron 684 Lobelia 685 Magnolia 686 Marguerite 687 Mimosa 688 Muguet 701 Sirius 702 Rigel 703 Antarès 704 Algol 705 Aldebaran	706 Régulus 707 Véga 708 Castor 709 Pollux 710 Pégase 726 La Dunkerquoise 727 La Malouine 728 La Bayonnaise 729 La Faimpolaise 730 La Dieppoise 731 La Lorientaise 734 Croix du Sud 735 Etoile Polaire 736 Altair 737 Capricorne 740 Cassiopée 741 Eridan 742 Orion 743 Sagittaire 744 Achernar 745 Procyon 746 Arcturus 747 Bételgeuse 748 Persée 749 Phénix 750 Bellatrix 751 Dénébola 752 Centaure 753 Fomalhaut 754 Canopus 755 Capella 756 Céphée 757 Verseau 758 Aries 759 Lyre 765 Mercure 771 Tulipe 772 Armoise 773 Violette 774 Oeillet 775 Paquerette 776 Jasmin 781 Aubépine 782 Capucine 783 Hortensia 784 Geranium 785 Hibiscus 786 Dahlia 787 Jonquille 788 Myosotis 789 Petunia
F Flag Superior:	P Flag Superior:		
724 Malgache 725 Victor Schoelcher 726 Commandant Bory 727 Amiral Charner 728 Doudart de Lagrée 729 Balny 733 Commandant Rivière 748 Protet 749 Enseigne de Vaisseau Henry 750 La Perouse 751 Beaumonts Beaupré 754 O. E. Paul Goffeny 761 Le Corse 762 Le Brestois 763 Le Boulonnais 764 Le Bordelais 765 Le Normand 766 Le Picard 767 Le Gascon 768 Le Lorrain 769 Le Bourguignon 770 Le Champenois 771 Le Savoyard 772 Le Breton 773 Le Basque 774 L'Agenais 775 Le Béarnais 776 L'Alsacien 777 Le Provençal 778 Le Vendéen	630 L'Intrépide 635 L'Ardent 637 L'Étourdi 638 L'Éffronté 639 Le Frondeur 640 Le Fringant 641 Le Fougueux 642 L'Opiniâtre 643 L'Agile 644 L'Adroit 645 L'Alerte 646 L'Attentif 647 L'Enjoué 648 Le Hardi 660 La Recherche 680 Astrolabe 681 Boussole 682 Alidade 683 Octant 730 La Combattante 9003 Argens 9004 Bidassoa 9005 Odet 9006 Cheliff 9007 Trieux 9008 Dives 9009 Blavet 9020 Foudre		

FRENCH CARRIER-BORNE AIRCRAFT

Name	Maker	Type	Dimensions	Power Plant	Armament	Performance
ETENDARD IV-M	Dassault	Single-Seat Interceptor and Fighter-Bomber	Wing Span 31 ft. 6 in. Length 47 ft. 3 in.	One SNECMA Atar 8 turbojet	Two 30 mm. cannon, 3,000 lb. of bombs or missiles	Max. speed 713 m.p.h. at 36,000 ft. Range 370-1,000 miles
ETENDARD IV-P	Dassault	Single-Seat Reconnaissance/Flight Refuelling Tanker Aircraft	Wing Span 31 ft. 6 in.	One SNECMA Atar 8 turbojet	Cameras in nose and underfuselage pack	Max. speed 713 m.p.h. at 36,000 ft. Range 370-1,000 miles
Br 1050 ALIZÉ	Breguet	Three-Seat Anti-Submarine Aircraft	Wing Span 51 ft. 2 in. Folded 22 ft. 11 in. Length 45 ft. 6 in.	One Rolls-Royce Dart R. Da. 7 turboprop	One ASM torpedo. Up to five depth charges. Six rockets or two missiles	Max. speed 322 m.p.h. Normal endurance 4 hr. 30 min.

French carriers also equipped with U.S.-built F-4E (FN) Crusader fighters and French-built Sikorsky SH-34 (HSS-1) helicopters.

FRENCH NAVAL GUIDED MISSILES

Type	Name	Maker	Length ft.	Propulsion	Speed Mach.	Range miles	Guidance System	Notes
SURFACE-TO-SURFACE	Malafon	Latécoère	19.66	Two solid boosters only. Unpowered in cruise	0.6	11	Command	Aeroplane configuration. Built around 21 in. acoustic homing torpedo. In service.
SURFACE-TO-AIR	Masurca Mk. 2	Ruelle Arsenal	28.2	Two-stage solid propellant	2.5	25	Semi-active radar	To be standard naval anti-aircraft armament

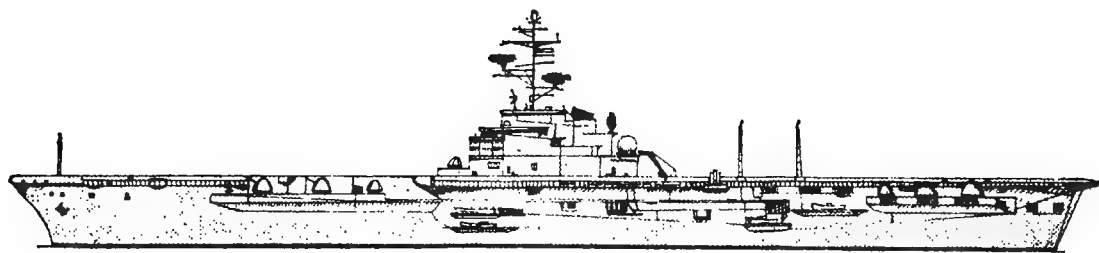
Administration	Second Five Year Plan 1965-70	Projected Strength 1970
Chief of the Naval Staff: Amiral G. E. J. Cabanier.	The second five year plan provides for: The new construction of: 3 nuclear powered fleet ballistic missile submarines, 5 so-called "corvettes" of 2,700-3,500 tons, 1 High speed submarine of 3,000 tons, 2 Submarines of "Daphne" type, 1 Minesweeper of new ocean type, 8 Minehunters of coastal type. The conversion and modernisation of: 6 Submarines, "Narval" class. 5 Destroyers as anti-submarine ships.	2 attack aircraft carriers, 1 helicopter carrier, 2 cruisers, 2 guided missile ships, 18 destroyers, 27 frigates, 5 heavy corvettes, 21 submarines, 10 maintenance ships, 13 landing ships, 100 minesweepers.
Assistant Chief of Naval Staff: (Major Général de la Marine).		Personnel 1965: 77,000 (5,000 officers, 72,000 petty officers and men)
Vice-Amiral d'Escadre R. Meynier.		Mercantile Marine Lloyd's Register of Shipping: 1,532 vessels of 5,116,232 tons gross
Naval Attaché in London:		
Contre-Amiral Marcel Andre Noël.		
Naval Attaché in Washington:		
Vice-Amiral Jean L. Michel Prache.		

Aircraft Carriers

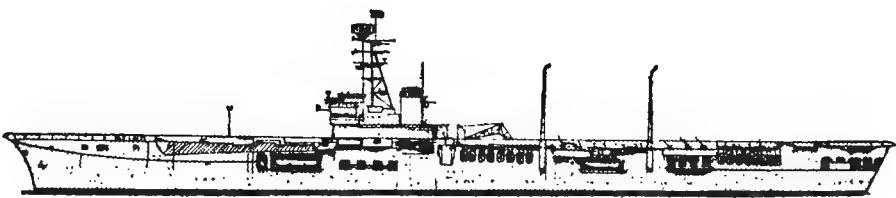
Silhouettes

Cruisers

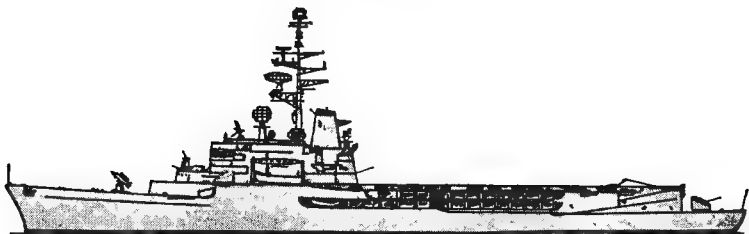
Scale: 150 feet=1 inch



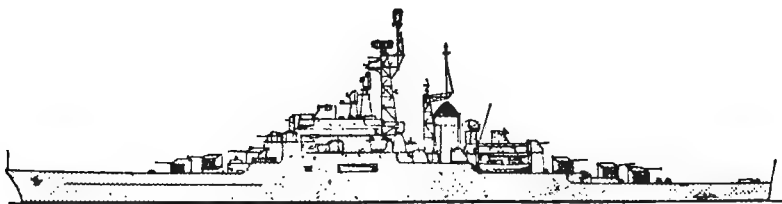
CLEMENCEAU, FOCH



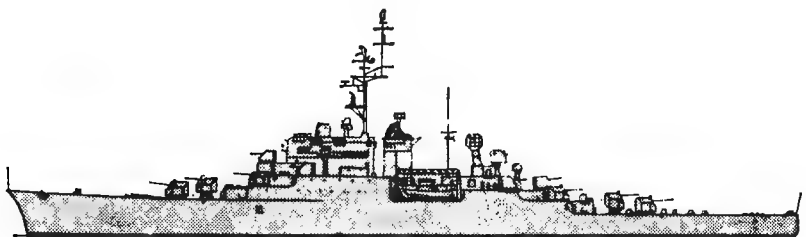
ARROMANCHES



JEANNE D'ARC (ex-La Résolue)



COLBERT (whale boat emplacement now suppressed)



DE GRASSE (now being refitted)

Destroyers, Escorts

Silhouettes—continued

Frigates, etc.

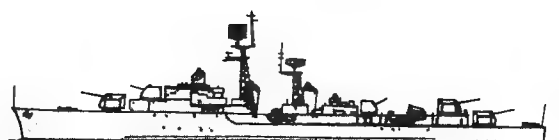
Scale 150 ft.=1 inch



LA GALISSONNIERE



SURCOUF Class. Guided Missile Type



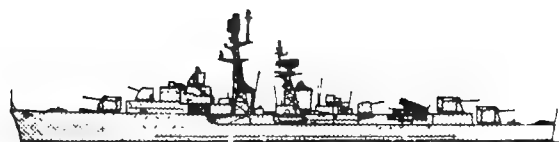
DUPERRÉ Class. T 53 R Type



COMMANDANT RIVIÈRE Class



MALGACHE



FORBIN (bridge differs slightly)



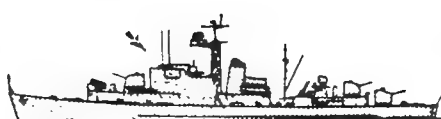
L'ALSACIEN, LE PROVENÇAL, LE VENDEEN



BEAUTEMPS-BEAUPRÉ Class



SURCOUF Class. Original T 47 Type



L'AGÉNAIS, LE BÉARNAIS



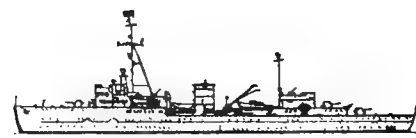
PAUL GOFFENY



SURCOUF Class. Command Type



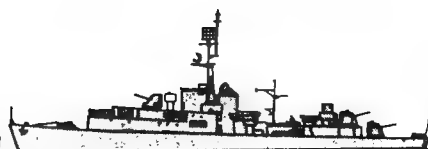
LE NORMAND Class E 52 Type



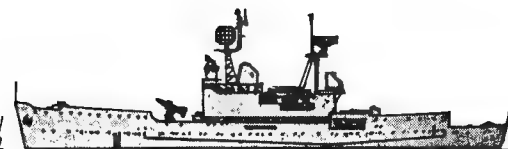
GUSTAVE ZÉDÉ



D'ESTRÉES (VDS aft)



LE CORSE Class. E 50 Type



ILE d'OLÉRON

AIRCRAFT CARRIERS (Porte-Avions)



1964, French Navy, Official

2 "Clemenceau" Class

CLEMENCEAU (PA 54) FOCH (PA 55)

Name:	Clemenceau	Foch
Pennant No.:	R 98	R 99
Builders:	Brest	Penhoët-Loire & Brest
Laid down:	Nov. 1955	Feb. 1957
Launched:	21 Dec. 1957	23 July 1960
Completed:	22 Nov. 1961	15 July 1963

Displacement:	22,000 tons standard (27,307 tons normal, 31,000 tons full load)
Dimensions:	833½ (pp.), 845 (o.a.) × 96½ (hull) in Clemenceau, 104 (hull with bulges in Foch), 151 (max.) × 24 feet. See Bulge notes
Guns:	8—3.9 inch (100 mm. automatic) AA. in single turrets
Armour:	Flight deck, hull (over machinery spaces and magazines), island superstructure and bridges
Aircraft:	Capacity 30, including jet aircraft. They carry 3 flights, 1 of Etendard IV, 1 of Aquilon, 1 of Breguet-Alizé. (See Aircraft notes.)
Catapults:	2 Mitchell-Brown Steam Mk. BS-5
Machinery:	Penhoët geared turbines, 2 shafts. S.H.P.: 126,000=32 kts.
Boilers:	6 (See Engineering notes)
Oil fuel:	4,000 tons
Radius:	7,500 miles at 18 kts., 4,800 miles at 24 kts
Complement:	2,700 (including 179 officers)

Construction

These are the first aircraft carriers designed as such and built from the keel up to be completed in France. Authorised in 1953 and 1955 respectively, *Clemenceau* was ordered from Brest Dockyard on 28 May 1954 and begun in Nov. 1955. *Foch* began construction at Chantiers de l'Atlantique a St. Nazaire, Penhoët-Loire, in a special dry dock (the contract provided for the construction of the hull and propelling machinery) and was completed by Brest Dockyard.

Aircraft

50 Crusaders were purchased in Spring 1963 and will be delivered by the end of 1965 for *Clemenceau* and *Foch*.

Flight Deck

They have the angled deck incorporated, two lifts, measuring 52½×36 feet, one of them on the starboard deck edge, two steam catapults for aircraft up to 11 tons, and two mirror sight deck landing aids. The flight deck measures 543×96½ feet and is angled at 8 degrees.

Hangar

Dimensions of the hangar are: 497½×87×28 feet.



FOCH

1963, French Navy, Official

Gunnery

These aircraft carriers were originally to have been of the light fleet type with an armament of 24—2.25 inch guns in twin mountings, but the armament was revised to 12—3.9 inch (100 mm.) in 1956 and to 8—3.9 inch (100 mm.) in 1958. The 100 mm. guns are of a new design. Rate of fire 60 rounds per minute.

Bulge

Foch was completed with bulges, and she therefore has greater width, see above official figures. These bulges having proved to be successful during trials, *Clemenceau* will be modified similarly when she undergoes her first refit.

Engineering

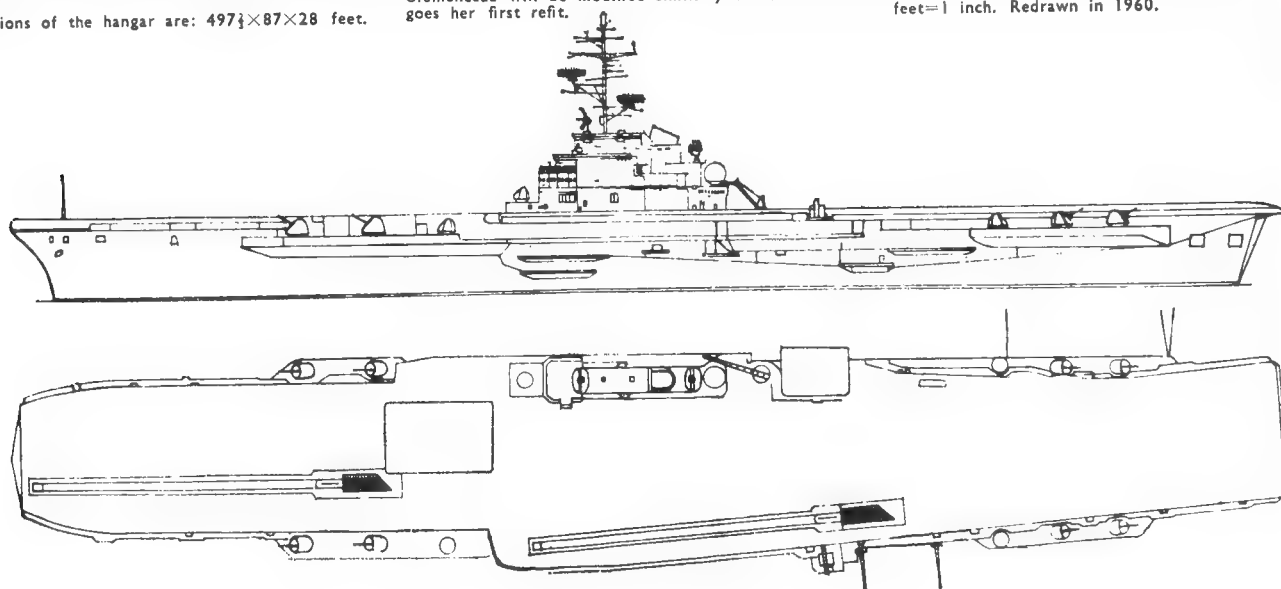
The boilers work at a steam pressure of 45 kilograms per square centimetre (640 pounds per square inch), the steam being superheated to 450 degrees Centigrade (842 degrees Fahrenheit).

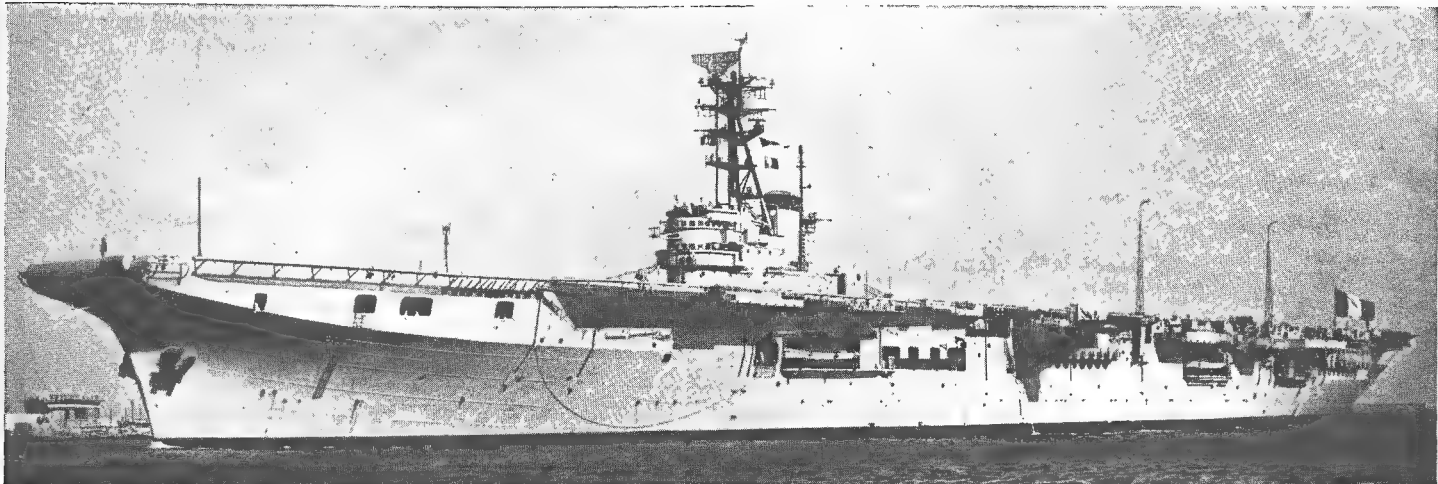
Photographs

A starboard broadside view, a port bow oblique aerial view, and an overhead plan view of *Clemenceau* showing angled deck, appear in the 1960-61 and 1961-62 editions; and a port oblique aerial view and a bows-on aerial view in the 1962-63 edition.

Drawing

Port elevation and plan of *Clemenceau*. Scale: 128 feet=1 inch. Redrawn in 1960.





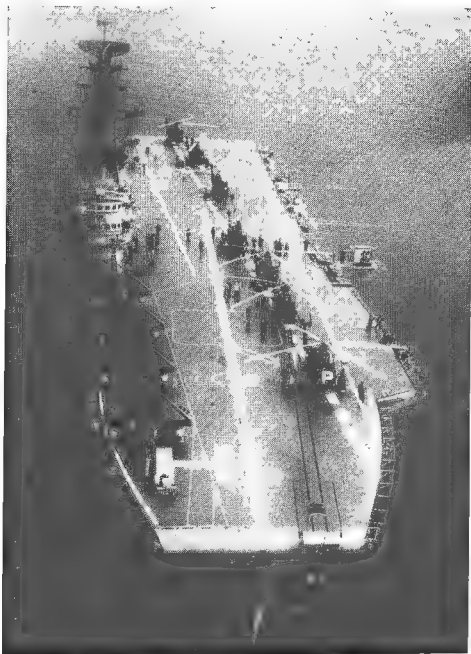
ARROMANCHES

1959, French Navy, Official



ARROMANCHES

1965, French Navy, Official



ARROMANCHES 1965, French Navy, Official

I Ex-British "Colossus" Class

ARROMANCHES (ex-H.M.S. Colossus)

Pennant No.:	R 95
Builders:	Vickers-Armstrongs Ltd. (Tyne)
Laid down:	1 June 1942
Launched:	30 Sep. 1943
Completed:	16 Dec. 1944
Displacement:	14,000 tons standard (19,600 tons full load)
Dimensions:	Length: 694½ feet (o.a.). Beam: 80½ feet. Width: 118 feet (o.a.). Draught: 23 feet
Guns:	Removed (See Gunnery notes)
Aircraft:	24 (variable) including helicopters

Machinery:	Parsons geared turbines. 2 shafts. S.H.P.: 40,000=23.5 kts.
Boilers:	4, of 3-drum type (400 lb. working pressure, 680 degrees F. superheat)
Oil fuel:	3,200 tons
Radius:	12,000 miles at 14 kts.; 6,200 miles at 23 kts.
Complement:	1,019 total in peacetime (42 officers and 777 men and 200 for air service)

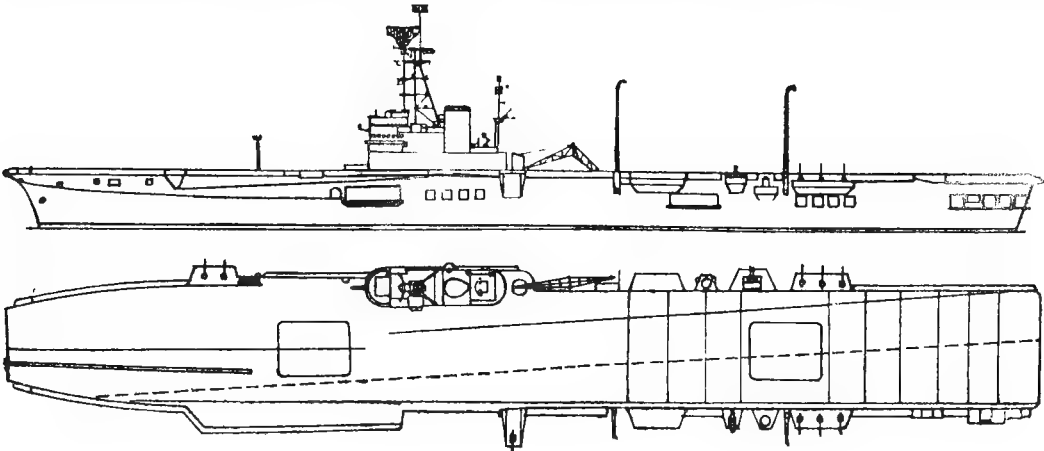
General
This ship was lent to the French Navy for five years from August 1946 with the option of purchase in 1951, which was taken up, and she was permanently transferred from Great Britain in that year. Extensively refitted 1950-51; and again refitted in 1957-58 (see Reconstruction notes). She is now employed as a training carrier with no guns.

Reconstruction
Modernised and partially rebuilt in 1957-58 with the angled deck at 4 degrees, and mirror sight deck landing aid sponsons, the overall width being increased from 112½ feet to just over 118 feet (35 metres). In consequence of these modifications the ship is able to receive the new Breguet Alizé ASM aircraft of the 1050 type.

Engineering
Engines and boilers are arranged *en echelon*, one set of turbines and two boilers being installed side by side in each of the two main propelling machinery spaces.

Gunnery
She formerly mounted 43—40 mm. AA. guns (as refitted) but these were removed when she became a training carrier.

Drawing
Port elevation and plan. Drawn in 1959. Scale: 128 feet=1 inch.



CRUISER HELICOPTER CARRIER (*Croiseur Porte-Hélicoptères*)

JEANNE D'ARC

1964, French Navy, Official

I Training/Commando Type

JEANNE D'ARC (ex-La Résolue)

Pennant No.:	R 97
Builder:	Brest Dockyard
Ordered:	8 Mar. 1957
Laid down:	7 July 1960
Launched:	30 Sep. 1961
Completed:	1 July 1963 (for trials) 30 June 1964 (operational)
Displacement:	10,000 tons standard (12,000 tons full load)
Dimensions:	Length: 590½ feet (o.a.) Beam: 78½ feet (hull), Draught: 20½ feet (max.). Helicopter platform: 230×85 feet
Guns:	4—3.9 inch AA. single mountings
Guided weapons:	Twin launcher for "Maurica" surface-to-air missiles
Aircraft:	Heavy anti-submarine helicopters (4 in peacetime as a training ship, 8 in wartime)
Machinery:	Rateau-Bretagne geared turbines. 2 shafts. S.H.P.: 40,000=26.5 kts. (designed)
Boilers:	4, working at a pressure of 640 lb. per sq. in. and a temperature of 842 deg. F. of superheat
Oil fuel:	1,360 tons
Radius:	6,000 miles at 15 kts.
Complement:	920 (40 officers, 200 petty officers, 490 men, 190 cadets)

General

Authorised under the 1957 estimates. Used for training officer cadets in peacetime in place of the old training cruiser *Jeanne d'Arc* which was discarded in 1964. In wartime, after rapid modification, she would be used as a commando ship, helicopter carrier or troop transport with commando equipment and a battalion of 700 men. The lift has a capacity of 12 tons. The ship is almost entirely air-conditioned.

Gunnery

She was originally designed to mount six 100 mm. (3.9 inch) guns (now four), and a quadruple mortar, now replaced by a twin launcher for "Maurica" surface-to-air guided missiles.

Electronics

The ship is almost as well equipped with electronic apparatus as the aircraft carrier *Clemenceau*. She also has long range sonar gear.

Nomenclature

The name *La Résolue* was only a temporary one until the decommissioning of the old training cruiser *Jeanne d'Arc* which was relieved by *La Résolue* in 1964 when the latter ship took the name *Jeanne d'Arc*, on 16 July.

Modifications

Between first steaming trials and completion for operational service the ship was modified with a taller funnel to clear the superstructure and obviate the smoke and exhaust gases swirling on to the bridges.

After completion, in 1964, the whaleboat emplacement was plated in.

Photographs

Photographs of *Jeanne d'Arc* (as *La Résolue*), before modification with taller funnel, appear in the 1963-64 edition: near broadside surface view, starboard quarter surface view, and port quarter oblique aerial view showing hangar open. The latter view also appears in the 1964-65 edition.

Disposal of Escort Carrier

The auxiliary aircraft carrier *Dixmude* (ex-H.M.S. *Biter*, ex-*Rio Parana*), officially rated as *Transport d'Aviation*, former U.S. escort carrier, reduced to a hulk in 1960 and used as a barracks, was returned to the U.S.A. in 1965. (For disposals of Fast Light Fleet Aircraft Carriers, Battleships, Cruisers, and Light Cruisers, see 1964-65 edition.)



JEANNE D'ARC

1965, French Navy, Official



JEANNE D'ARC

1964, French Navy, Official

ANTI-AIRCRAFT CRUISERS (Croiseurs Anti-Aérien)



COLBERT

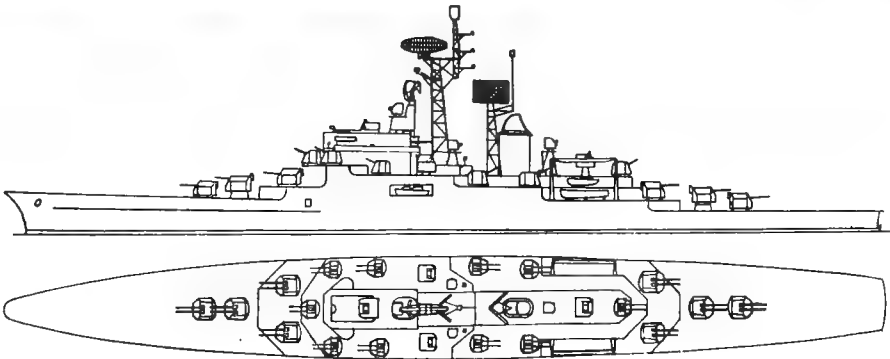
1963, Stefan Terzibaschitsch

I Improved “De Grasse” Class

COLBERT

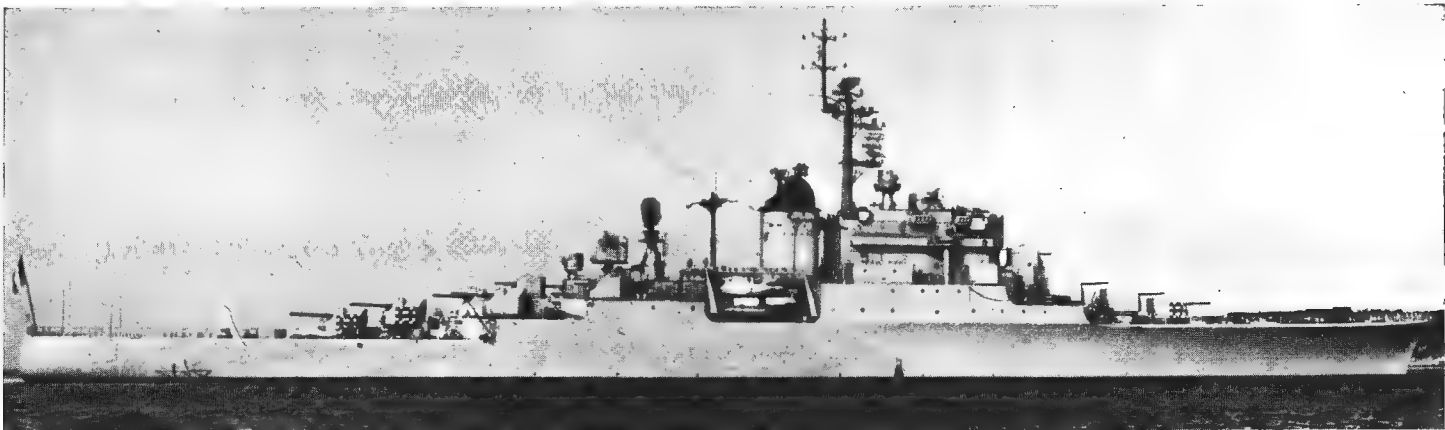
Pennant No.: C 611
Builders: Brest Dockyard
Laid down: Dec. 1953
Launched: 24 Mar. 1956 (floated out of dry dock)
Completed: 1958 (trials end of 1957)
Commissioned: 5 May 1959

Displacement: 8,720 tons standard (11,000 tons full load)
Dimensions: Length: 574½ (pp.), 597½ (o.a.) feet. Beam: 63½ feet. Draught: 18½ feet
Guns: 16—5 inch AA. (8 twin mountings), 20—57 mm. Bofors AA. (10 twin mountings)
Aircraft: 1 helicopter
Armour: Has some protection. See notes
Machinery: CEM-Parsons geared turbines. 2 shafts. S.H.P.: 86,000=32 kts. 4, working at a pressure of 640 lb. per sq. in and a temperature of 842 deg. F of superheat
Boilers: 4,000 miles at 25 kts.
Radius: 977 (70 officers and 907 men)
Complement:



General
Provision was made in the design so that she can be fitted eventually with guided missiles. Has a new scheme of protection, and a platform for a helicopter. Equipped as a fleet command ship and for radar control of air strikes. As a fast transport she could carry 2,400 men and equipment. Taken in hand for refit in Oct. 1962.

Gunnery
Guns are radar controlled with stabilised gunlayers for automatic tracking.
Drawing
Port elevation and plan. Redrawn in 1957. Scale: 128 feet=1 inch. The whale boat emplacement was suppressed in 1963.



DE GRASSE

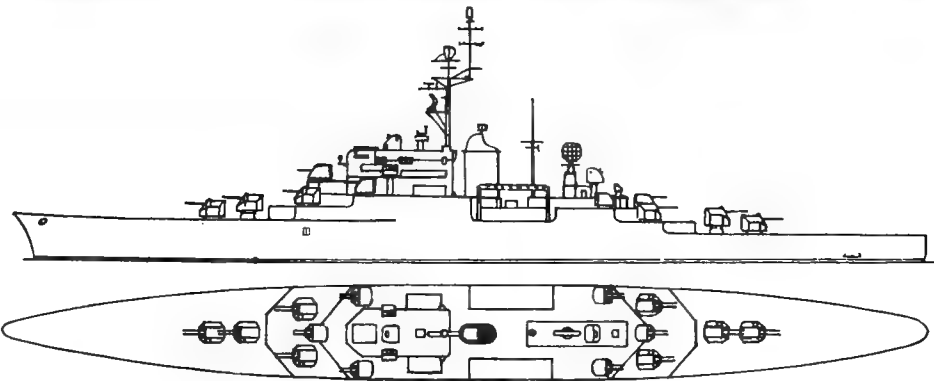
1962, French Navy, Official

I “De Grasse” Class

DE GRASSE

Pennant No.: C 610
Builders: Lorient Dockyard and Brest Dockyard (see notes)
Engineers: A. & C. de Bretagne
Laid down: Nov. 1938
Launched: 11 Sep. 1946
Completed: Aug. 1955 (trials)
Commissioned: 3 Sep. 1956 (operational)

Displacement: 9,380 tons standard (11,545 tons full load)
Dimensions: Length: 592 (pp.), 617½ (o.a.) feet. Beam: 61 feet. Draught: 18½ feet (mean)
Guns: 16—5 inch AA. (8 twin mountings), 12—57 mm. Bofors AA. (6 twin mountings)
Armour: Has some protection including armoured deck and side belt.
Machinery: Rateau-Chantiers de Bretagne geared turbines. 2 shafts. S.H.P.: 105,000=33.5 kts.
Boilers: 4 multitubular
Oil fuel: 1,850 tons
Radius: 5,000 miles at 18 kts.
Complement: 983 (86 officers and 897 men with Admiral on board); 950 (60 officers and 890 men) as a private ship



General
Ordered under the 1937 Estimates. Her construction was suspended during the German occupation of Lorient, but was resumed in 1946 until her launch when building was stopped. Construction was again resumed on 9 Jan. 1951. Completed in Brest Dockyard as an anti-aircraft cruiser to a modified design. She is equipped as a fleet command ship and for radar control of air strikes.

Modifications
Being refitted at Brest as Flagship of the Pacific Experimental Nuclear Centre in 1966. Signal department is being enlarged, and several turrets may be suppressed.
Gunnery
Guns are radar controlled with stabilised gunlayers.
Drawing
Port elevation and plan. Scale: 128 feet=1 inch.

GUIDED MISSILE FRIGATES (*Frégates Lance-Engins*)



SUFFREN (model)

1965, French Navy, Official

2 "Suffren" Class (FLE 60 Type)

DUQUESNE	SUFFREN
Displacement:	4,700 tons standard (5,700 tons full load)
Dimensions:	Length: 518½ (o.a.) feet. Beam: 48 feet. Draught: 19½ feet
Guided weapons:	Twin launcher for "Masurca" surface-to-air missiles
Guns:	2 single automatic 3.9 inch AA. 2 single automatic 30 mm. AA.
A/S weapons:	Malafon guided missile (rocket glider dropping a homing torpedo in vicinity of enemy submarine) Helicopter directed by the ship towards enemy submarine
Machinery:	Homing torpedoes launched directly from the ship Double reduction geared turbines 2 shafts. S.H.P.: 70,000=34 kts.

Construction

The structure of the ship provides the best possible resistance to atomic blast. Fitted with up-to-date detection devices (radar and sonars). Carefully studied habitability is a feature of the design.

The first ship of this class, *Suffren* (FLE 60, No. 1), was laid down in Jan. 1963 at Lorient, launched on 15 May 1965, trials in 1965-66, and commissioning for operational service in 1967. *Duquesne* was laid down in Nov. 1964 at Brest. Only two ships of the class will now be built instead of the three originally projected. Other frigates of the same type but of larger size will be built later.

Reclassification

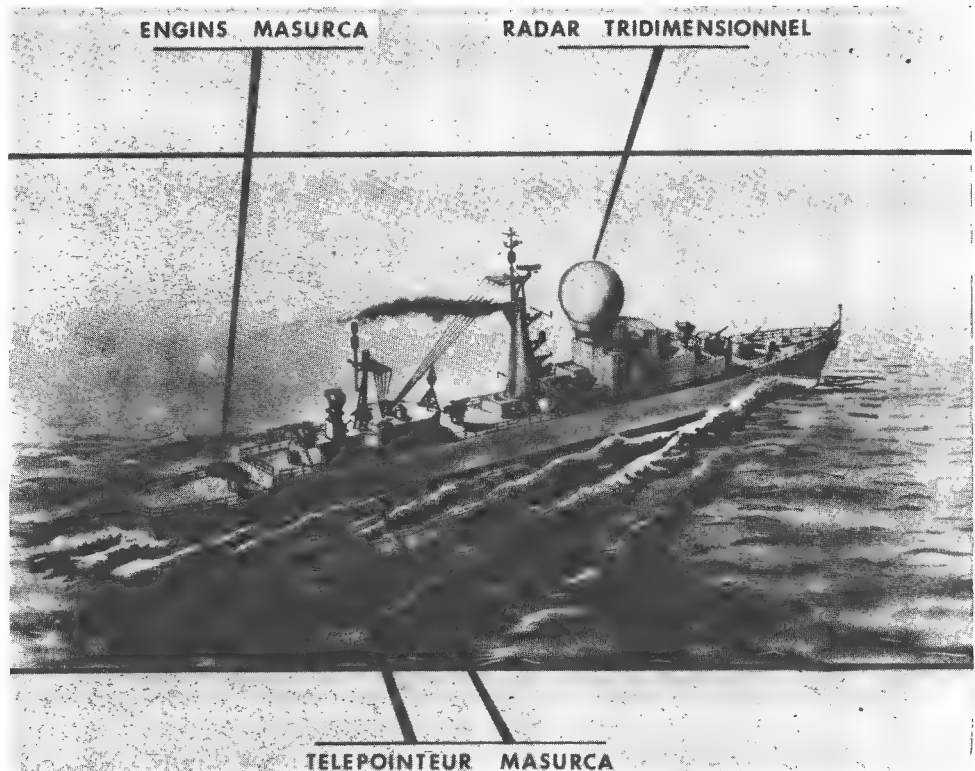
Until 1961 this type was officially known as "guided missile cruiser," but as it more nearly approximated to the current destroyer leader category it was reclassified as "guided missile frigate".

Design

There have been several recastings of the design. See silhouette drawing in the 1961-62 and 1962-63 editions, and photograph of the interim model in the 1963-64 and 1964-65 editions.

Disposal

The old training cruiser *Jeanne d'Arc*, C 605 (completed in 1931) was decommissioned in 1964 when the new cruiser helicopter carrier *La Résolue* replaced her as training ship and took her name on 16 July 1964 (see photograph and full particulars in the 1964-65 and earlier editions).



SUFFREN

1965, French Navy, Official

New Construction 5 Corvettes

Displacement:	2,700 tons standard (3,500 tons full load)
Guided weapons:	Masurca surface-to-air
A/S weapons:	Malafon surface-to-surface
Guns:	1—3.9 inch anti-aircraft

General

Provided for under the Second Five Year Plan. From their size and armament they might logically be described as guided missile frigates. But an official statement runs: "5 Corvettes—These ships will be primarily anti-submarine ships with advanced armament and sonar apparatus including variable depth sonar, bow sonar and Malafon system. The displacement full load of these ships will be near 3,500 tons."

EXPERIMENTAL GUIDED MISSILE SHIP (Ex-Transport)

ILE D'OLÉRON (ex-München, ex-Mur)

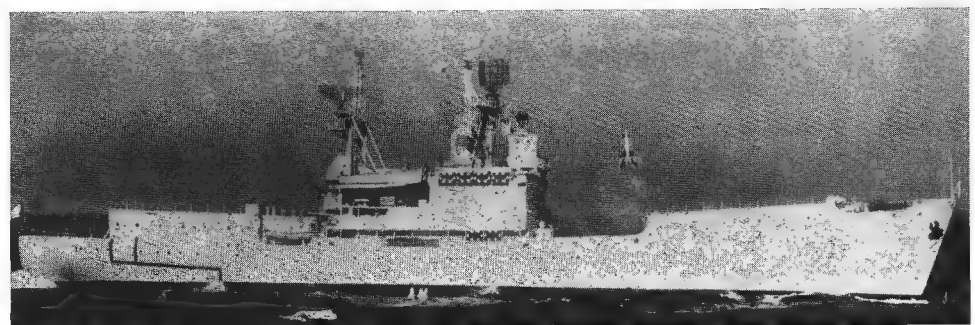
Displacement:	3,280 tons standard (7,500 tons full load)
Dimensions:	350 (pp.), 377½ (o.a.) × 50 × 21½ feet
Machinery:	M.A.N. 6-cyl. diesels. 1 shaft. B.H.P.: 3,500=14.5 kts.
Oil fuel:	340 tons
Radius:	7,200 miles at 12 kts.: 5,900 miles at 14 kts.
Complement:	195 (15 officers, 180 men)

General

This vessel, launched in Germany in 1939, and taken as a war prize, was formerly rated as a transport. She was employed as an accommodation vessel at Brest until she was converted into an experimental guided missile ship in 1957-58 by Chantiers de Provence et l'arsenal de Toulon. She was commissioned as a test bed early in 1959.

Experimental

When converted she was designed for experiments with two launchers for ship to air missiles, the medium



ILE D'OLÉRON

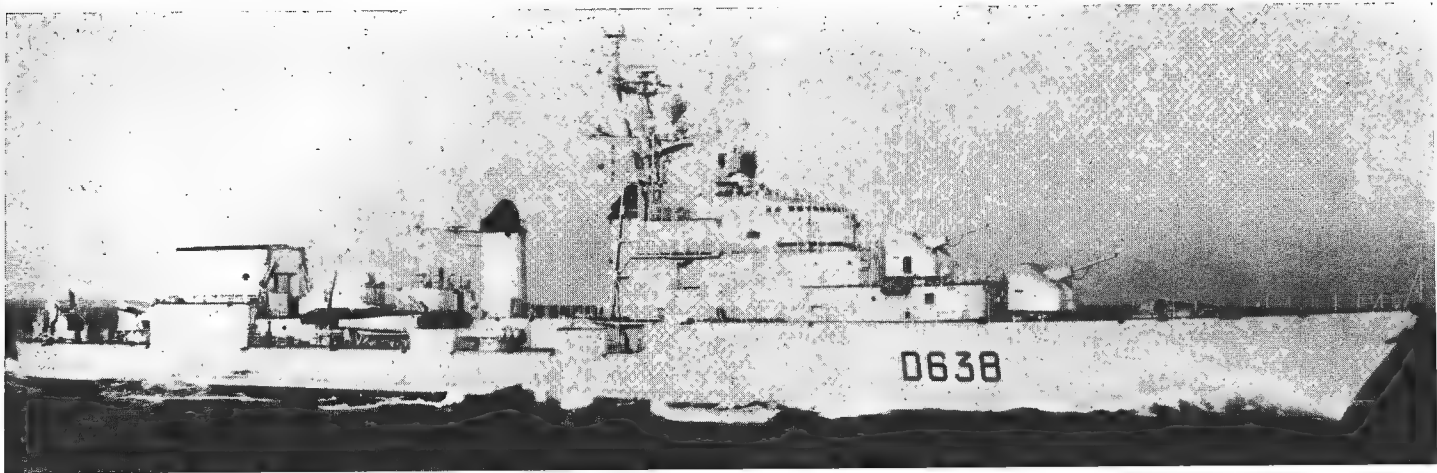
1964, French Navy, Official

range "Masurca" and the long range "Masalca," and one launcher for ship to ship to shore missiles, the

"Malaface". Latterly fitted with one launcher for target planes.

DESTROYERS (Rated as Escorteurs d'Escadre)

18 "Surcouf" Group



LA GALISSONNIERE

1963, French Navy, Official

I Anti-Submarine (T 56) Type

LA GALISSONNIERE

Pennant No.: D 638
Builders: Lorient Naval Dockyard
Laid down: Nov. 1958
Launched: 12 Mar. 1960
Completed: July 1962

Displacement: 2,750 tons standard (3,750 tons full load)
Dimensions: 422 (o.a.) x 41½ x 16½ (mean), 17½ (max.) feet
Guns: 2—3.9 inch automatic AA. in single mounts
Aircraft: 1 anti-submarine helicopter (see A/S weapons)

Guided weapons: 1 launcher for "Malafon" missiles (see A/S weapons)
Tubes: 6—21.7 inch ASM (2 triple)
A/S weapons: 1—12 inch (quadruple) ASM mortar
1 A/S helicopter
1 launcher for "Malafon" A/S guided missile
Machinery: Geared turbines, 2 shafts, S.H.P.: 63,000—34 kts. (72,000 S.H.P. —38 kts. on trials light)
Boilers: 4
Oil fuel: 800 tons
Radius: 5,000 miles at 18 kts.
Complement: 333 (20 officers and 313 men)

General
Designed as a squadron escort and flotilla leader. She has extensive sonar and anti-submarine apparatus, including variable depth sonar and homing torpedoes. Particularly well developed anti-aircraft and radar equip-

ment, T56 type. Same characteristics as regards hull and machinery as T 47 and T 53 R types, but different armament. She has a hangar and a platform for landing a helicopter. When first commissioned she was used as an experimental ship for new sonars and anti-submarine weapons.

Armament
She is fitted with French marks of guided missiles and was the first French combatant ship to be so armed. This is the reason for the two 3.9 inch guns instead of the 3 or 4 previously planned. As redesigned she was France's first operational guided missile ship.

Photographs
A photograph of La Galissonniere as first completed appears in the 1962-63 edition.
Photographs of Forbin (see below) appear in the 1958-59 to 1962-63 editions.



TARTU

1963, Stefan Terzibaschitsch

5 "Duperré" Class

Aircraft Direction (T 53) Type

Displacement: 2,750 tons standard (3,750 tons full load)
Dimensions: 422 (o.a.) x 41½ x 16½ (mean), 17½ (max.) feet
Guns: 6—5 inch AA. (twin mounts), 6—2.25 inch (57 mm.) Bofors AA., 2 or 4—20 mm. AA.
Tubes: 6—21.7 inch ASM (two triple mountings) also able to launch ordinary torpedoes
A/S weapons: New device of heavy hedgehog (sextuple Bofors lance roquettes howitzer)
Machinery: 2 Geared turbines, 2 shafts, S.H.P.: 63,000=34 kts.
Boilers: 4 (500 lb./sq. in. pressure, 725 deg. F. superheat) in two boiler rooms separated by turbine compartments
Oil fuel: 700 tons
Radius: 5,000 miles at 18 kts.
Complement: 346 (20 officers and 326 men)

Name	Pennant No.	Builders	Laid down	Launched	Completed (commissioned)
DUPERRÉ	D 633	Lorient Naval Dockyard	Nov. 1954	2 July 1955	8 Oct. 1957
FORBIN	D 635	Brest Naval Dockyard	Aug. 1954	15 Oct. 1955	1 Feb. 1958
JAUREGUIBERRY	D 637	F. C. Gironde	Sep. 1954	5 Nov. 1955	July 1958
LA BOURDONNAIS	D 634	Brest Naval Dockyard	Aug. 1954	15 Oct. 1955	Mar. 1958
TARTU	D 636	A. C. Bretagne	Nov. 1954	2 Dec. 1955	5 Feb. 1958



DUPERRÉ

1962, A. & J. Pavia

General
Radar Picket Destroyers. Modified "Surcouf" Class or "T 53 R" Type. Specially fitted as aircraft direction and command ships. Radar equipment is more comprehensive and prominent than in the original "Surcouf" or "T 47" Anti-Aircraft Type and gives them a different appearance. All authorised under the 1953 Programme. These vessels were classed as Escorteurs Rapides in 1953, but re-rated as Escorteurs in 1955. Latest electronic appliances provided. Names after famous sailors.

Constructional
Hull entirely welded. Light alloys used extensively for upperworks.

Gunnery
The 5 inch guns are able to use standard American ammunition.

Destroyers—continued

18 "Surcouf" Group—continued



D'ESTREES (with bow sonar and VDS)

1963, French Navy, Official



SURCOUF (as modified)

1962, French Navy, Official

12 "Surcouf" Class

Bouvet Du Chayla Dupetit Thouars Kersaint	Rearmed with guided missiles
Cassard Chevalier Paul Surcouf	Converted to command ships
Casablanca D'Estrées Guépratte Maille Brézé Vauquelin	Original anti-aircraft T 47 type to be converted to anti-submarine
Displacement:	2,750 tons standard 3,750 tons full load)
Dimensions:	422 (o.a.)×41½×17½ feet
Guns:	6—5 inch AA. (twin mounts), 6—57 mm. AA., 6—20 mm. AA.
Guided Missiles:	See Guided Missile notes
Tubes:	12—21.7 inch in four triple mountings (6 for ordinary and 6 for ASM homing torpedoes). See Command notes
Machinery:	2 geared turbines. 2 shafts. S.H.P.: 63,000=34 kts.
Boilers:	4 (500 lb./sq. in. pressure, 725 deg. F. superheat)
Oil fuel:	700 tons
Radius:	5,000 miles at 18 kts.
Complement:	347 (19 officers and 328 men)

General

Authorized under the 1949 to 1952 programmes. Designed as Escorteurs Rapides Anti-aériens but re-rated Escorteurs 1^{re} Classe in 1951, Escorteurs Rapides in 1953 and Escorteurs d'Escadre in 1955. Named after famous French sailors.

Construction

Hull entirely welded, assembled from 84 prefabricated sections with a total weight of 1,100 tons. Light alloys used extensively for upperworks. Two boiler rooms alternate with two turbine compartments.

Gunnery

The semi-automatic 5 inch guns (a calibre then new in the French Navy) were chosen to facilitate shell supply so that they could use standard U.S. ammunition.

Guided Missiles

Bouvet, Du Chayla, Dupetit Thouars and Kersaint re-armed with single "Tartar" Mark 13 (40 missiles).

Command

Cassard, Chevalier, Paul and Surcouf, refitted as flotilla leaders, retaining their 6—5 inch guns but only 4—57 mm. AA. and 6 tubes for ASM torpedoes.

Conversion

In 1966 Casablanca, D'Estrées, Guépratte, Maille Brézé and Vauquelin are to be converted into anti-submarine vessels similar to La Galissonnière (see previous page). New armament: 2—3.9 inch AA., 1 Malafon missile launcher, 6 A/S tubes (2 triple), 1 rocket launched Bofors, variable depth sonar and bow sonar.

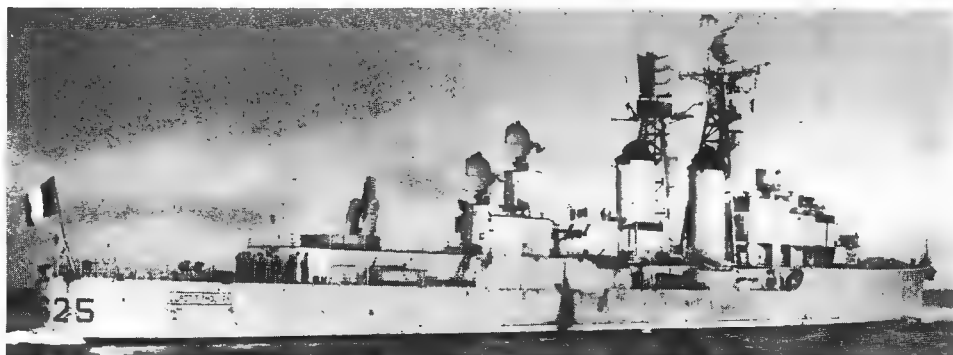
Photographs

A photograph of Vauquelin appears in the 1957-58 to 1962-63 editions. Guépratte in the 1959-60 to 1961-62 editions, Casablanca in the 1959-60 to 1962-63 editions.

Name	Pennant No.	Builders	Laid down†	Launched	Completed*
BOUVET	D 624	Lorient Naval Dockyard	June 1952	3 Oct. 1953	13 May 1956
CASABIANCA	D 631	A. C. Bretagne	Oct. 1953	13 Nov. 1954	4 May 1957
CASSARD	D 623	A. C. Bretagne	Nov. 1951	12 May 1953	14 Apr. 1956
CHEVALIER PAUL	D 626	F. C. Gironde	Feb. 1952	28 July 1953	22 Dec. 1956
D'ESTRÉES	D 629	Brest Naval Dockyard	May 1953	27 Nov. 1954	19 Mar. 1957
DU CHAYLA	D 630	Brest Naval Dockyard	July 1953	27 Nov. 1954	4 June 1957
DUPETIT THOUARS	D 625	Brest Naval Dockyard	Mar. 1952	4 Feb. 1954	15 Sep. 1956
GUEPRATTE	D 632	F. C. Gironde	Aug. 1953	9 Nov. 1954	6 June 1957
KERSAINT	D 622	Lorient Naval Dockyard	Nov. 1951	3 Oct. 1953	20 Mar. 1956
MAILLE BRÉZÉ	D 627	Lorient Naval Dockyard	Oct. 1953	26 Sep. 1954	4 May 1957
SURCOUF	D 621	Lorient Naval Dockyard	July 1951	3 Oct. 1953	1 Nov. 1955
VAUQUELIN	D 628	Lorient Naval Dockyard	Mar. 1953	26 Sep. 1954	3 Nov. 1956

† Dates when assembly actually started on slip.

* Dates of entering service



DUPETIT THOUARS (rearmed with guided missiles)

1963, French Navy, Official



CASSARD (helicopter platform on stern)

1962, Augusto Nani

DUAL PURPOSE FRIGATES (Rated as Avisos Escorteurs)

9 "Commandant Riviere" Class

Name	Launched	Completed
AMIRAL CHARNER	12 Mar. 60	15 Dec. 62
BALNY	15 Apr. 61	Mar. 63
COMMANDANT BORY	11 Oct. 58	Mar. 64
COM'DANT BOURDAIS	15 Apr. 61	Mar. 63
COMANDANT RIVIERE	11 Oct. 58	4 Dec. 62
DOUDART DE LAGRÉE	15 Apr. 61	Mar. 63
ENSEIGNE HENRY		Jan. 65
PROTET	17 Mar. 62	Sep. 63
VICTOR SCHOELCHER	11 Oct. 58	15 Oct. 62
Displacement:	1,750 tons standard (2,200 tons full load)	
Dimensions:	321½ (pp.), 334 (o.a.)×37½×12½ (mean) feet	
Guns:	3—3.9 inch single automatic AA.; 2—30 mm. AA.	
Aircraft:	1 light helicopter can land aft	
Tubes:	6—21 inch ASM	
A/S weapons:	1—12 inch quadruple ASM and anti-shore mortar	
Machinery:	Diesels. 2 shafts. B.H.P.: 16,000 =25 kts. (see notes)	
Radius:	4,500 miles at 15 kts., 6,000 miles at 12 kts.	
Complement:	180 peace, 210 war (Commando unit of 80 can be carried)	

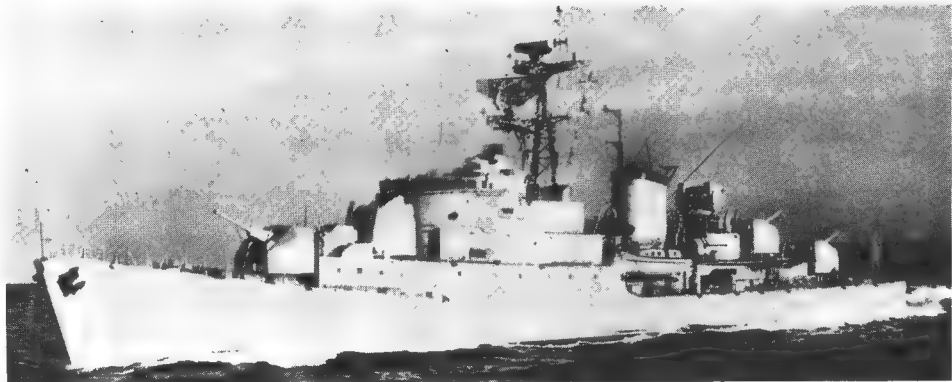
General
All built under the 1956 and 1957 estimates by Lorient Naval Dockyard. *Commandant Rivière* started assembly on slip in Nov. 1956 and commissioned for preliminary sea trials on 1 Apr. 1959. *Balny* and *Com mandant Bory* are equipped with Sigma free piston generators and gas turbines. Others have four SEMT-Pielstick diesels coupled two by two on two shafts. Formerly classed as *Escorteurs d'Union Française*, but officially re-rated as *Avisos Escorteurs* on 1 Apr. 1959. Dual purpose type, designed to serve as *avisos* in peace-time and *frigates* in wartime. *Commandant Bourdais* commissioned as fishery protection ship for Newfoundland and Greenland in Mar. 1963. *Victor Schoelcher* acts as training ship.

Photographs
A photograph of *Commandant Rivière* appears in the 1960-61 to 1964-65 editions.



ENSEIGNE DE VAISSEAU HENRY

1965, French Navy, Official



DOUDART DE LAGRÉE

1964, French Navy, Official

FAST FRIGATES (Rated as Escorteurs Rapides)

18 Oceangoing (A S and AA.) Group

14 "Le Normand" Class

(E 52 Type)

Displacement:	1,295 tons standard (1,700 tons full load)
Dimensions:	311½ (pp.), 327½ (o.a.)×33½×10 feet
Guns:	6—2.25 inch (57 mm. twin) AA. (4 in L'Alsacien, Le Provençal, Le Vendéen), 2—20 mm. AA.
Tubes:	12 ASM (four triple mountings aft) for homing torpedoes
A/S weapons:	Heavy sextuple ASM Bofors mortar of hedgehog type forward (lance-roquettes); 2 D.C. mortars; 1 D.C. rack (see notes)
Machinery:	Geared turbines. Parsons or Rateau. S.H.P.: 20,000=27 kts. (on trials they topped 29 kts.)
Boilers:	2 (500 lbs./sq. in. pressure, 725 deg. F. superheat)
Radius:	4,500 miles at 15 kts.
Complement:	200

General
The E 52 a type have similar characteristics to the E 50 type as regards hull and machinery but are easily distinguished in that they have the ASM tubes aft and the heavy hedgehog or ASM howitzer forward while the E 50 type have the ASM torpedo tubes forward. L'Agenais, L'Alsacien, Le Béarnais, Le Provençal and Le Vendéen have a different arrangement of bridges. L'Alsacien, Le Provençal, and Le Vendéen have the Strombos-Velensi type modified funnel cap, and differ in armament, with a 12-inch quadruple mortar in place of the sextuple Bofors' howitzer and only 4—57 mm. AA. guns.

Cancellation
Owing to financial difficulties the construction of the two frigates of the "E 52 b" type, which were to have been provided under the 1957 naval estimates, was abandoned.

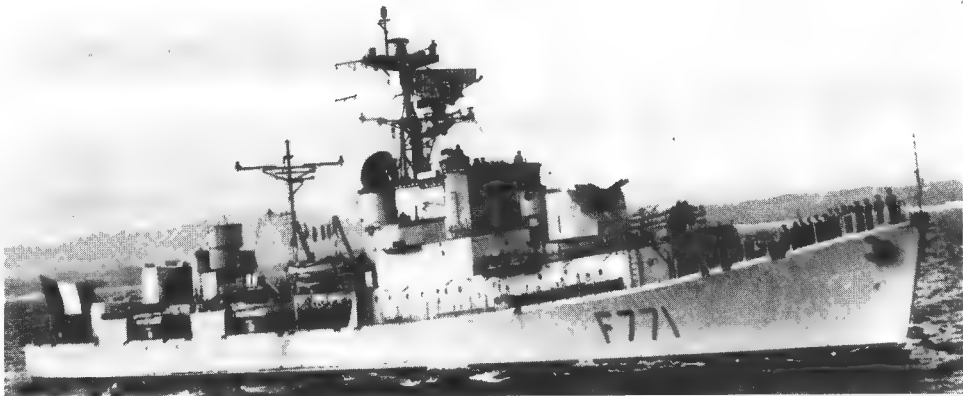
Photographs
A photograph of *Le Gascon* appears in the 1957-58 to 1959-60 editions, of *Le Champenois* in the 1957-58 edition, of *L'Agenais* in the 1958-59 and 1960-61 to 1963-64 editions, of *Le Vendéen* in the 1959-60 to 1961-62 editions, of *L'Alsacien* in the 1960-61 to 1963-64 editions, and of *Le Bourguignon* in the 1962-63 and 1963-64 editions.

Disposals of ex-British "River" type
Of the "L'Aventure" class, *La Decouverte* (ex-H.M.S. *Windrush*) was condemned in May 1961, and *La Croix de Lorraine* (ex-H.M.S. *Strule*, ex-Glenarm), *L'Ailette* (ex-L'Escarmouche, ex-H.M.S. *Frome*) and *La Confiance* (ex-Tankinios, ex-H.M.S. *Malaya*) in Sep. 1961. *L'Aventure* was withdrawn from active service on 15 Dec. 1961. *La Surprise*, placed in Special Reserve on 16 Dec. 1957, was sold to Morocco in June 1964.

Disposals of Colonial Sloop Type
Of the three frigates of the colonial sloop type, rated as *Avisos*, *Grandiere* was scrapped in 1959, *Dumont d'Urville* in 1958, and *Savorgnan de Brazza* in 1955.

Name	Pennant No.	Programme	Builders	Laid down	Launched	Completed*
LE NORMAND	F 765	1952	F. Ch. de la Mediterranee	July 53	13 Feb. 54	3 Nov. 56
LE LORRAIN	F 768	1952	F. Ch. de la Mediterranee	Feb. 54	19 June 54	1 Jan. 57
LE PICARD	F 766	1952	A. C. Loire	Nov. 53	31 May 54	20 Sep. 56
LE GASCON	F 767	1952	A. C. Loire	Feb. 54	23 Oct. 54	29 Mar. 57
LE CHAMPENOIS	F 770	1952	A. C. Loire	May 54	12 Mar. 55	1 June 57
LE SAVOYARD	F 771	1952	F. Ch. de la Mediterranee	Nov. 53	7 May 55	14 June 56
LE BOURGUIGNON	F 769	1952	Penhoët	Jan. 54	28 Jan. 56	11 July 57
LE BRETON	F 772	1953	Lorient Navy Yard	June 54	2 Apr. 55	20 Aug. 57
LE BASQUE	F 773	1953	Lorient Navy Yard	Dec. 54	25 Feb. 56	18 Oct. 57
LE AGENAIS	F 774	1954	Lorient Navy Yard	Aug. 55	23 June 56	14 May 58
LE BEARNAIS	F 775	1954	Lorient Navy Yard	Dec. 55	23 June 56	18 Oct. 58
LE ALSACIEN	F 776	1955	Lorient Navy Yard	July 56	26 Jan. 57	27 Aug. 60
LE PROVENÇAL	F 777	1955	Lorient Navy Yard	Feb. 57	5 Oct. 57	6 Nov. 59
LE VENDEEN	F 778	1955	F. Ch. de la Mediterranee	Mar. 57	27 July 57	1 Oct. 60

* Dates of commissioning, after completion of trials.



LE SAVOYARD

1964, courtesy Mr. Michael D. L. Lennon



LE VENDEEN

1964, French Navy, Official

Fast Frigates (Rated as *Escorteurs Rapides*)—continued

18 Oceangoing Group—continued

4 "Le Corse" Class

(E 50 Type)

Displacement: 1,290 tons standard, 1,528 tons for trials (1,702 tons full load)
 Dimensions: 311½ (pp.), 327½ (o.a.) × 33½ × 10 feet
 Guns: 6—2.25 inch (57 mm). AA. (twin mounts) 2—20 mm. AA.
 A/S weapons: 2 mortars, 1 D.C. rack, 1 sextuple lance-roquettes
 Tubes: 12 ASM tubes (four triple) for homing torpedoes. E 50 type have ASM tubes forward
 Machinery: Geared turbines. Parsons or Rateau. S.H.P.: 20,000—27 kts. (Bordelais, 29.5 kts. on trials)
 Boilers: 2 (500 lbs./sq. in. pressure, 725 deg. F. superheat)
 Radius: 4,500 miles at 15 kts.
 Complement: 198

General

Intended as seagoing convoy escort vessels with a large radius of action. Designed as *Escorteurs Rapides* Anti-Sousmarins. Re-rated as *Escorteurs de Deuxième Classe* in 1951, as *Escorteurs* in 1953, and as *Escorteurs Rapides* in 1955. First four laid down are E 50 type, remainder E 52 type. *Le Bordelais* has *Strombos-Velensi* type modified funnel cap. *Le Brestois* has similar mainmast to that in *Provençal*.

Gunnery

Le Brestois had a single 3.9 inch automatic AA. gun mounted in place of the after twin mounting for experimental purpose, and after her refit completed in 1963 she retains this mounting.

Status

Le Boulonnais and *Le Corse* were placed in normal reserve status on 1 Dec. 1964, it is officially stated.

Photographs

Photographs of *Boulonnais* appear in the 1956-57, 1957-58 and 1963-64 editions, of *Le Corse* in the 1955-56 to 1957-58 editions, and of *Le Bordelais* in the 1957-58 to 1963-64 editions.



LE BOULONNAIS

1964, Stefan Terzibaschitsch

Name	Pennant No.	Programme	Builders	Laid down	Launched	Completed
LE BORDELAIS	F 764	1950	F. Ch. de la Mediterranee	May 52	11 July 53	7 Apr. 55
LE BOULONNAIS	F 763	1950	A. C. Loire	Mar. 52	12 May 53	5 Aug. 55
LE BRESTOIS	F 762	1949	Lorient Navy Yard	Nov. 51	16 Aug. 52	19 Jan. 56
LE CORSE	F 761	1949	Lorient Navy Yard	Oct. 51	5 Aug. 52	15 Apr. 55

FRIGATES (Rated as *Avisos*) Ex-Escorteurs

Ex-U.S. Destroyer Escort Type

2 "Arabe" Class

Displacement: 1,300 tons standard (1,650 tons full load)
 Dimensions: 300 (pp.), 306 (o.a.) × 36½ × 10½ feet
 Guns: *Malgache*: 2—3 inch; 6—40 mm. AA.; 14—20 mm. AA.
Somali: Guns removed (see Experimental notes)
 Machinery: Diesel electric drive. 4 General Electric diesels. 2 electric motors. 2 shafts. B.H.P.: 6,000=19 kts. economical speed 12 kts.)
 Oil fuel: 300 tons
 Radius: 11,500 miles at 11 kts., 5,500 at 19 kts.
 Complement: 150 peace, 185 war

General

Somali is the sole survivor of the first group of six ships acquired from the United States in 1944. These were formerly rated as *Torpilleurs d'Escorte*, but re-rated *Escorteurs de Deuxième Classe* in 1951. Six more DEs of the same class were transferred from the U.S.A. in Mar. 1950 under the Atlantic Pact. Two more including *Malgache* were transferred from the U.S.A. on 29 Mar. 1952, at Brooklyn. All re-rated as *Escorteurs* in 1953 and as *Avisos* in 1964.

Amphibious

Malgache is now command ship at the Amphibious Training Centre (C.I.O.A.) at Lorient. She no longer carries any anti-submarine armament.

Experimental

Somali was converted into an experimental vessel in 1956 and her armament landed, her pennant number subsequently being changed from F 703 to A 607. She is no longer a combatant ship.

Class

Former United States destroyer escorts of the "Bostwick" class.

Photographs

A photograph of *Somali* with F pennant number appears in the 1957-58 to 1959-60 editions.

Disposals

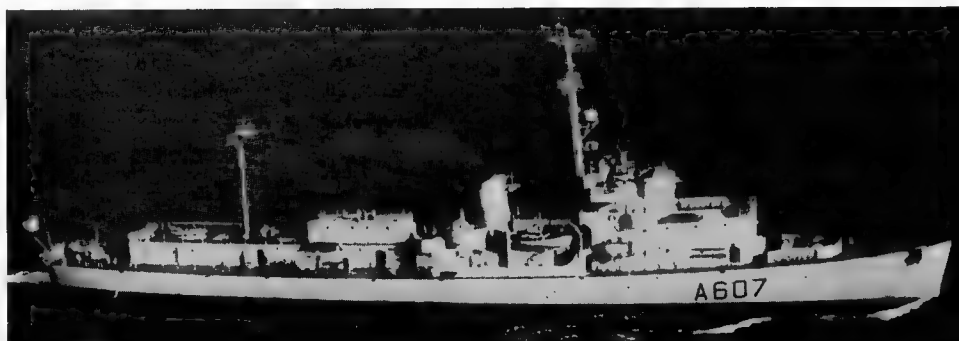
Sister ships *Hava* (ex-DE 110), *Marocain* (ex-DE 109) and *Tunisien* (ex-Crosley, DE 108) of the 1st Group, and *Arabe* (ex-Samuel S. Miles, DE 183), *Borbère* (ex-Clarence L. Evans, DE 113) and *Sakalave* (ex-Wingfield, DE 194) were officially stricken from the list in 1960. *Oise* (ex-Algérien, ex-Cronin, DE 107) and *Yser* (ex-Sénégalais, ex-Corbesier, DE 106) of the 1st Group, and *Bambara* (ex-Sweager, DE 186), *Kayble* (ex-Riddle, DE 185), *Soudanais* (ex-Cates, DE 763) and *Touareg* (ex-Bright, DE 747) were officially deleted from the list in 1965.

Name	Pen. No.	Builders	Launched	Completed
MALGACHE (ex-U.S.S. Baker, DE 190)	F 724	Federal S.B. & D.D. Co.	28 Nov. 43	23 Dec. 43
SOMALI (ex-U.S.S. DE 111)	A 607	Dravo Corporation, Wilmington, Del.	12 Feb. 44	9 Apr. 44



MALGACHE

1964, Stefan Terzibaschitsch



SOMALI

1965, French Navy, Official

FRIGATES (Rated as Avisos)

2 "Beautemps-Beaupré" Class

BEAUTEMPS-BEAUPRÉ (ex-Sans Souci)
LA PÉROUSE (ex-Sans Peur)

Name:	Beautemps-Beaupré	La Pérouse
Pennant No.:	F 751	F 750
Builders:	Penhoët	Penhoët
Laid down:	1940	1940
Launched:	1941	1941
Completed:	8 May 1947	23 Apr. 1947
Displacement:	1,327 tons standard (2,000 tons full load)	
Dimensions:	311½ × 38½ × 10½ feet	
Guns:	1—4.1 inch, 2—40 mm. AA. 4—20 mm. AA.	
Machinery:	Sulzer diesels, 2 shafts. B.H.P.: 4,200=16 kts.	
Oil fuel:	230 to 240 tons	
Radius:	7,000 miles at 15 kts.; 12,000 miles at 10 kts.	
Complement:	152 (12 officers and 140 ratings)	
General	Formerly rated as Avisos Coloniaux Hydrographes. Re-rated as Escorteurs de Deuxième Classe in 1953, as Avisos Escorteurs 11 Aug. 1953, and as Avisos in 1955.	



BEAUTEMPS-BEAUPRÉ

1964, French Navy, Official

Used as survey ships (*Batiments Hydrographes*).

Gunnery

The 4.1 inch guns are of the German 105 mm. model.

Photographs

A photograph of *La Pérouse* appears in the 1955-56

to 1963-64 editions.

Status

The first ship arrived at Brest in Feb. 1965 and the second later; both are to be placed on the supplementary list, it is officially stated.

1 "Commandant Robert Giraud" Class

PAUL GOFFENY (ex-German *Max Stinsky*)

Pennant No.	F 754
Builders:	Norderwerft, Hamburg
Launched:	1940
Completed:	7 Aug. 1941

Displacement:	1,000 tons standard (1,380 tons full load)
Dimensions:	239 (pp.), 256 (o.a.) × 36 × 12 feet
Guns:	1—4.1 inch, 2—40 mm. AA., 2—20 mm. AA.
Machinery:	4 MAN diesels, 2 shafts. B.H.P.: 8,800=20.5 kts.
Oil fuel:	236 tons
Radius:	4,000 miles at 18 kts.; 7,800 miles at 12 kts.
Complement:	77

General

Former *dépanneur d'hydravions*, ex-German aircraft tender. Transferred by Great Britain in Aug. 1946, with *Commandant Robert Giraud*. Re-rated as *Escorteur de Deuxième Classe* early in 1953, as *Aviso Escorteur* on 11 Aug. 1953, and as *Aviso* in 1955. Used as patrol and escort vessel, support gunboat and carrier for commandos.



PAUL GOFFENY

Added 1964, French Navy, Official

The four diesels are coupled two by two by hydraulic transmission on two shafts.

Sister ship *Commandant Robert Giraud* was reclassified as a *gabare* (boom defence vessel) in 1963 and is listed on a later page.

Disposals of Corvettes (Avisos)

The three corvettes of the Later "Chamois" Class, *Bisson*, *Commandant Amyot D'Inville* and *Commandant De Pimodan* were officially stricken from the list in 1965.

Of the three corvettes of the Early "Chamois" Class,

Chamois was transferred to the Royal Moroccan Navy on 7 Nov. 1961 and renamed *El Lahia*, *Gazelle* was condemned in Mar. 1961, and *Chevreuil* was transferred to the Tunisian Navy on 13 Oct 1959 and renamed *Dustur*.

Of the nine corvettes of the "Elan" Class, *La Moqueuse* was officially stricken from the list in 1965, *La Capricieuse* was scrapped in Dec. 1963, *Commandant Delage*, *Commandant Dominié* (ex-*La Rieuse*) and *Commandant Duboc* in 1961, *Elan*, *La Boudeuse* and *La Gracieuse* in 1958, and *Commandant Bory* in 1953.

COMMAND SHIP (*Batiment de Commandement*)

Ex-German Type

GUSTAVE ZÉDÉ (ex-Saar)

Builders:	Krupp-Germania
Launched:	5 Apr. 1934
Displacement:	2,895 tons standard (3,230 tons full load)
Dimensions:	308 × 44½ × 14 feet
Guns:	3—4.1 inch, 4—40 mm. AA., 8—20 mm. AA.
Machinery:	2 sets Krupp diesels, 2 shafts. B.H.P.: 3,700=16 kts.
Fuel:	336 tons
Radius:	9,400 miles at 11 kts.
Complement:	364

General

Former German submarine school depot ship. Acquired from the U.S. Navy in Oct. 1947. Recommissioned in 1949 as a *Ravitailleur-pour-Sousmarins* (Submarine Depot Ship). Alterations were made to the bridge and foremast in 1952. Formerly Flagship of the 3rd F.E.R. (3e *flotille d'escorteurs rapides*) or *Groupe d'action anti-submarine* (Anti-submarine Group). Now Flagship of the Fleet Training Centre.

Disposal

The submarine depot ship *Jules Verne*, latterly fleet repair and port depot ship, was scrapped in 1960.



GUSTAVE ZÉDÉ

Added 1960, Wright & Logan

ASSAULT LANDING SHIP (*Transport de chalands de débarquement*)

OURAGAN TCD 1

Displacement:	5,800 tons light, 8,500 tons full load (15,000 tons when fully immersed)
Dimensions:	489 × 70½ × 15 feet (28½ feet max.)
Guns:	6—30 mm. AA., 2—4.7 inch mortars (only 4—40 mm. AA. at present)
Machinery:	2 diesels, 2 shafts. B.H.P.: 8,000=17 kts.
Radius:	8,000 nautical miles at 15 kts.
Complement:	341 (14 officers and 327 men)

Construction

Built at Brest Dockyard. Laid down in June 1962. Launched on 9 Nov. 1963. Completed for trials in 1964. Commissioned in Jan. 1965. Bridge is on the starboard side. Fitted, beside landing craft, with heavy helicopters. Able to carry EDICs loaded with eleven light tanks each, or 18 loaded LCMs, also 1,500 tons of material and equipment handled by two 35 tons cranes. Reported to be a very successful ship. Allocated to the Pacific Nuclear Experimental Centre on completion.



OURAGAN

1965, courtesy Admiral M. Adam

SUBMARINES

I Nuclear Powered Fleet Ballistic Missile Type (SSBN)

LE 1 (Q 252)

Builders: Cherbourg
Laid down: Mar. 1964
Launch: Estimated 1966-67
Completion: Estimated 1969
Operational: Estimated 1970

Displacement: 7,900 tons surface, 9,000 tons submerged
Dimensions: 420×343×32½ feet
Guided weapons: 16 tubes amidships for "Polaris" type missiles with a range of 1,250 to 1,900 miles

LE 1 (model)

Torpedo tubes: 4
Machinery:

Complement:

1 nuclear reactor. Geared turbines. Speed=20 kts. surface, 25 kts. submerged
 135 (14 officers, 121 men). Two alternating crews.

General

The first French nuclear powered, ballistic missile armed submarine. Prototype of the "Force Frappe" of three, or possibly five, such vessels which the Navy hopes to have by 1972. The ballistic missiles are comparable with the United States "Polaris" weapons.



1964, French Navy, Official

I Experimental Missile Type

GYMNOTE (Q 251)

Builders: Cherbourg
Laid down: Mar. 1963
Launched: 17 Mar 1964
Completion: Estimated 1966

Displacement: 3,800 tons
Dimensions: 275×34½×25 feet
Guided weapons: 4 tubes for "Polaris" type fleet ballistic missiles
Machinery: Diesels and electric motors, 2 shafts. B.H.P.: 2,600=8 kts. surface, 10 kts. submerged
Complement: 65 (5 officers, 60 men) plus 40 technicians and engineers

General

A submarine experimental platform for the testing of ballistic missiles destined for the first French nuclear powered "Polaris" type submarine, and for use as an underwater laboratory to prove trial equipment and arms for nuclear submarines.



GYMNOTE

1965, French Navy, Official

9 + 2 "Daphne" Class

Name	Pennant No.	Launched	Completed
DAFNE	S 641	20 June 1959	1 June 1964
DIANE	S 642	4 Oct. 1960	20 June 1964
DORIS	S 643	14 May 1960	26 Aug. 1964
EURYDICE	S 644	19 June 1962	
FLORE	S 645	21 Dec. 1960	21 May 1964
GALATEE	S 646	22 Sep. 1961	25 July 1964
JUNON	S 649	11 May 1964	
MINERVE	S 647	31 May 1961	10 June 1964
VENUS	S 650	Sep. 1964	

Displacement: 850 tons surface, 1,040 tons submerged
Dimensions: 190½×22½×15½ feet
Tubes: 12 (8 bow, 4 stern)
Machinery: SEMT-Pielstick diesel-electric, 2 shafts. H.P.: 1,300/1,600=16 kts.
Complement: 45 (6 officers, 39 men)

Construction

Daphné, Diane and Minerve were built by Dubigeon, Nantes, and Doris, Eurydice, Flore, Galatée, Junon and Venus by Cherbourg.

Completion

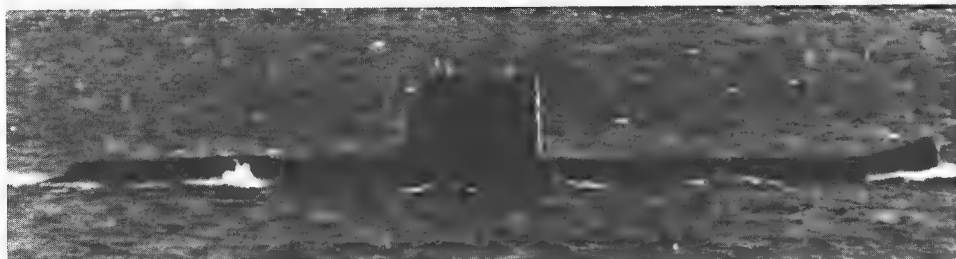
The revised completion dates given above are the actual dates of "admission to active service" announced officially.

Photographs

A photograph of Flore appears in the 1961-62 edition.

New Construction

Two more submarines of this class are to be started at Brest in 1965.



GALATEE

1965, courtesy Dr. Giorgio Arra



DAFNE

1962, French Navy, Official

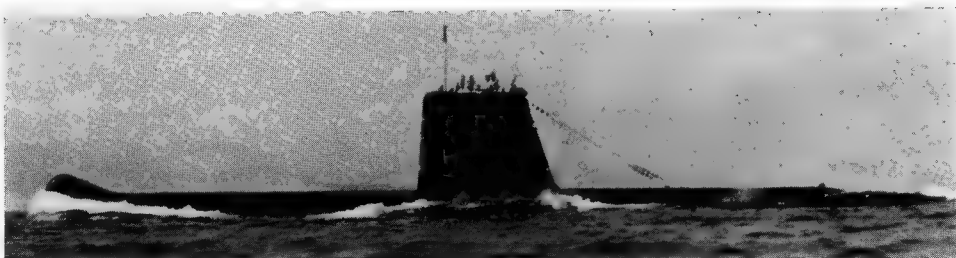
4 "Arethuse" Class

Name	Pennant No.	Launched	Completed
AMAZONE	S 639	3 Apr. 58	1 July 59
ARETHUSE	S 635	9 Nov. 57	23 Oct. 58
ARGONAUTE	S 636	29 June 57	11 Feb. 59
ARIANE	S 640	12 Sep. 58	16 Mar. 60

Displacement: 400 tons (standard), 529 tons (surface), 650 tons (submerged)
Dimensions: 164×19×12½ feet
Tubes: 4
Machinery: SEMT-Pielstick 12-cyl. diesel-electric, 1 shaft. H.P. 1,060/1,300=16 kts. surface, 18 kts. submerged
Complement: 39 (5 officers, 34 men)

Construction

All built at Cherbourg. Submarine-killer type for



AMAZONE

1964, courtesy Mr. Michael D. W. Lennon

hunting enemy submarines. Streamlined hull, silent motors, and up-to-date electronic and detection equipment.

Photographs

A photograph of Argonaute appears in the 1959-60 to 1963-64 editions.

Submarines—continued

6 "Narval" Class

Displacement: 1,200 tons (standard), 1,640 tons (surface), 1,910 tons (submerged)
Dimensions: 256 x 23½ x 18 feet
Tubes: 8 (6 interior, 2 exterior), 14 torpedoes. Torpedo tubes are quick loading
Machinery: Schneider 2-stroke, 7 cylinder diesels. B.H.P.: 4,000=16 kts. surface. Electric motors. H.P.: 5,000=18 kts. submerged
Radius: 15,000 miles with Schnorkel at 8 kts.
Complement: 58 (7 officers, 51 men)

Construction
Designed as oceangoing submarines. Improved versions of the German XXI type. *Dauphin*, *Marsouin*, *Narval* and *Requin* were built in seven prefabricated parts each of 10 metres in length.

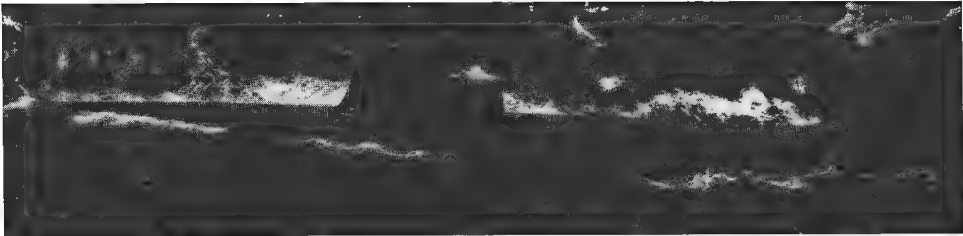
Nomenclature
Dauphine means Dolphin, *Espadon* means Swordfish, *Marsouin* means Porpoise, *Morse* means Walrus, *Narval* means Narwhal, and *Requin* means Shark.

Photographs
Photographs of *Narval* as first completed without bulbous bow appear in the 1957-58 edition, and a photograph of *Requin* appears in the 1959-60 and 1960-61 editions.

Reconstruction
Starting in 1965, these submarines will be reconstructed and given a new propulsion plant.

Engineering
New main machinery installed on reconstruction will include diesel-electric drive on the surface with SEMT-PIELSTICK diesels.

Recent Disposals of "S" Class
Of the former British submarines of the "S" class, *Sirène* was returned to Great Britain at Gosport on 24 Oct. 1958 and reverted to the original name *Spiteful*, and *Sultane* was returned to Great Britain at Rosyth on 5 Nov. 1959 and reverted her original name *Statesman*. *Saphir* (ex-Satyr) was also returned to Great Britain on 11 Aug. 1961 to await disposal at Rosyth. *Sibylle* (ex-Sportsman) was lost accidentally with all hands on 23 Sep. 1952, near Toulon.



ESPADON

1965, French Navy, Official

Name	Pennant No.	Programme	Builders:	Laid down	Launched	Completed
DAUPHIN	S 633	1950	Cherbourg	Jan. 1952	17 Sep. 1955	1 Aug. 1958
ESPADON	S 637	1954	Normand	Mar. 1957	15 Sep. 1958	2 Apr. 1960
MARSOUIN	S 632	1949	Cherbourg	Nov. 1951	21 May 1955	1 Oct. 1957
MORSE	S 638	1954	Seine Maritime	Dec. 1956	10 Dec. 1958	2 May 1960
NARVAL	S 631	1949	Cherbourg	Oct. 1951	11 Dec. 1954	1 Dec. 1957
REQUIN	S 634	1950	Cherbourg	Feb. 1952	3 Dec. 1955	1 Aug. 1958



DAUPHIN

Oct. 1957, Marius Bar



NARVAL

1957, Marius Bar

1 "L'Andromède" Type

L'ARTEMIS

Pennant No: S 603
Builders: Normand and Dubigeon
Programme: 1938
Laid down: 1945
Launched: 28 July 1952
Completed: 1954
Displacement: 909 tons (standard) 970 tons (surface), 1,250 tons (submerged)
Dimensions: 235½ (pp.), 241 (o.a.) x 21½ x 13½ feet
Tubes: 10—21.7 inch (6 internal)
Machinery: Sulzer diesels. B.H.P.: 3,000=17.3 kts. (surface)
Electric motors. H.P.: 1,400=14 kts. (submerged)
Oil fuel: 100 tons
Radius: 8,800 miles at 10 kts.
Complement: 62 (7 officers, 55 men)



L'ARTEMIS

1962, A. & J. Pavia

Construction
Construction of *L'Artemis* was resumed under the 1950 Programme. She was given streamlined superstructure, and snort, no guns. She is now the sole survivor of a class of five.

Recent Disposals
Of this class *L'Africaine* was withdrawn from active service on 1 July 1961 (she was reported to be worn out), *La Creole* was officially deleted from the list in Mar. 1963 and *L'Andromède* and *L'Astrée* in 1965.

1 Ex-German Type XXI

ROLAND MORILLOT (ex-U 2518)

Pennant No: S 613
Builders: Blohm & Voss, Hamburg
Completed: 1945
Displacement: 1,330 tons standard, 1,600 tons surface, 1,827 tons submerged
Dimensions: 237 (pp.), 252½ (o.a.) x 21½ x 20½ feet
Tubes: Removed (see General notes)
Machinery: 2 MAN 6-cyl. diesels. B.H.P.: 2,600=15 kts.; 2 electric motors. H.P.: 5,000=16 kts.
Oil fuel: 250 tons
Radius: 11,150 miles at 12 kts.; 9,000 miles at 8 kts. with Schnorkel
Complement: 65



ROLAND MORILLOT

1956, French Navy, Official

General
Former German oceangoing Type XXI U-boat. Transferred by Great Britain to the French Navy in 1945. All torpedo tubes were suppressed in 1964. She is now an experimental submarine.
Disposals
Blaision (ex-U 123), former German Type IX B, was

discarded in 1957. *Bouan* (exU 510), former German Type IXC, was scrapped in 1958.
Of the two former German Type VII C boats, *Lauble* (ex-U 766) was withdrawn on 17 Oct. 1961 (seriously damaged by collision and scrapped) and *Mille* (ex-U 471) in Aug. 1963.

LANDING SHIP DOCK



FOUDRE

1959, R. M. Scott

I Ex-U.S. LSD

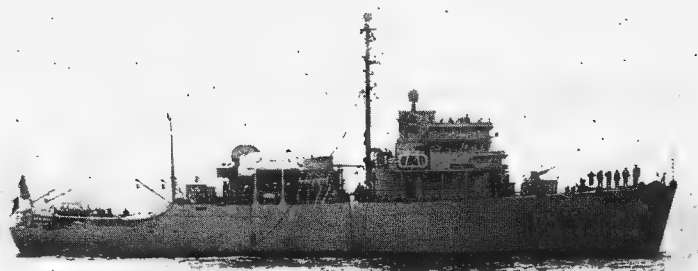
FOUDRE (ex-Greek *Okeanos*, ex-British *Oceanway*, ex-U.S. LSD 12)

Displacement: 4,500 tons standard (7,930 tons full load)
 Dimensions: 457½ (o.a.) × 72 × 18 feet
 Guns: 1—4.1 inch, 2—4.7 inch mortars, 4—40 mm. AA., 4—20 mm. AA.
 Machinery: Turbine, 2 shafts. H.P.: 7,400 17 kts.
 Boilers: 2
 Radius: 8,000 miles at 15 kts.
 Complement: 212 (12 officers, 200 men)

General

Built by Newport News S.B. & DD. Co. Launched on 29 Dec. 1943. Transferred by the United States to Great Britain in 1944. Acquired by Greece from whom she was purchased by the U.S. in 1952 and transferred to France under MDAP. Pennant No. A 646.

OCEAN MINESWEEPERS (Dragueurs Oceaniques)



BERNEVAL (short funnel type)

1964, Stefan Terzibaschitsch



COLMAR (tail funnel type)

1962, Stefan Terzibaschitsch

15 U.S. MSO (ex-AM) Type
"Berneval" Class

ALENCON (ex-AM 453) BIR HACHEIM (ex-AM 451) MYTHO (ex-AM 475)
 AUTUN (ex-AM 502) CANTHO (ex-AM 476) NARVICK (ex-AM 512)
 BACCARAT (ex-AM 505) COLMAR (ex-AM 514) ORIGNY (ex-AM 501)
 BERLAIMONT (ex-AM 500) DOMPAIRE (ex-AM 454) OUISTREHAM (ex-AM 513)
 BERNEVAL (ex-AM 450) GARIGLIANO (ex-AM 452) VINH LONG (ex-AM 477)

Displacement: 700 tons standard (795 tons full load)
 Dimensions: 165 (w.l.), 171 (o.a.) × 35 × 10½ feet
 Guns: 1—40 mm. AA.
 Machinery: 2 General Motors diesels, 2 shafts. B.H.P.: 1,600—13.5 kts. (designed), 14 kts. on trials.
 Radius: 3,000 miles at 10 kts.
 Complement: 54

General

The U.S.A. agreed in Sep. 1952 to transfer to France in 1953 eight new AM, and four more in 1954. Three more were transferred in 1956. *Bir Hacheim* was transferred in Feb. 1954. *Garigliano* was transferred in Apr. 1954 and *Vinh Long* in 1955. *Origny* was launched on 25 Feb. 1955, *Autun* on 6 May 1955, *Baccarat* on 6 Aug. 1955 and *Berlaumont* on 7 Jan. 1955.

Appearance

Autun, *Baccarat*, *Berlaumont*, *Colmar*, *Narvick*, *Origny* and *Ouistreham* are somewhat different from the others and have a taller funnel.

Class Variations

Origny is now classified and fitted as an oceanographic research vessel but is Navy owned and manned. *Mytho* is tender to the Naval School.

Photographs

An aerial port quarter view of *Garigliano* appears in the 1955-56 edition, a broadside surface view of *Alencon* in the 1956-57 to 1958-59 editions, a starboard bow view of *Narvick* in the 1959-60 edition, and a port broadside view of *Vinh Long* in the 1960-61 to 1963-64 editions.

COASTAL MINESWEEPERS (Dragueurs Côtiers)



ALTAIR

1964, Admiral M. Adam

34 British Type. "Sirius" Class

ACHERNAR (12 Aug. 54) CASTOR (19 Nov. 53) PEGASE (21 June 55)
 ALDEBARAN (27 June 53) CENTAURE (8 Mar. 55) PERSEE (23 May 55)
 ALGOL (15 Apr. 53) CEPHEE (3 Jan. 56) PHENIX (23 May 55)
 ALTAIR (27 Mar. 56) CROIX DU SUD (13 Jan. 56) POLLUX (16 July 54)
 ANTARES (21 Jan. 54) (13 Jan. 56) PROCYON (12 Dec. 54)
 ARCTURUS (12 Mar. 54) DENEbola (12 July 56) REGULUS (18 Nov. 52)
 ARIES (13 Mar. 56) ERIDAN (18 May 54) RIGEL (13 May 53)
 BELLATRIX (21 July 55) ETOILE POILAIRE (5 Mar. 57) SAGITTAIRE (12 Jan. 55)
 BETELGEUSE (12 July 54) (5 Mar. 57) SIRIUS (6 Oct. 52)
 CANOPUS (31 Dec. 53) FOMALHAUT (24 Apr. 55) VEGA (14 Jan. 53)
 CAPELLA (6 Sep. 55) LYRE (3 May 56) VERSEAU (26 Apr. 56)
 CAPRICORNE (8 Aug. 56) ORION (20 Nov. 53)
 CASSIOPEE (16 Nov. 53)
 Displacement: 365 tons standard (424 tons full load)
 Dimensions: 140 (pp.), 152 (o.a.) × 28 × 8½ feet
 Guns: 1—40 mm. Bofors AA., 1—20 mm. Oerlikon AA.
 Machinery: S.I.G.M.A. free piston generators and Alsthom or Rateau-Bretagne gas turbines or SEMT-Pielstick 16-cyl. fast diesels, 2 shafts. B.H.P.: 2,000=15 kts. (11.5 kts. when sweeping)
 Oil fuel: 48 tons
 Radius: 3,000 miles at 15 kts.
 Complement: 38

General

Of wooden and aluminium alloy construction. Launch dates above. Of some general characteristics as the British "Coniston" class, but of different hull construction. Propelled by Alsthom or Rateau gas turbine with S.I.G.M.A. free piston generator, except *Altair*, *Arcturus*, *Aries*, *Bételgeuse*, *Canopus*, *Capella*, *Capricorne*, *Céphée*, *Croix du Sud*, *Etoile Poilaire*, *Lyre*, *Phénix* and *Verseau*, which have Pielstick-SEMT light diesels. Similar to those built in Great Britain and the Netherlands of which the plans were basically similar for all. The original design of this type of craft was developed in close collaboration with John I. Thornycroft & Co. Ltd., Southampton and the Royal Navy. 16 of these vessels were built under the "off-shore" procurement programme. *Altair*, *Arcturus* and *Croix de Sud* have been station-ships in the West Indies since 1960. D 25, D 26 and D 27 were allocated to Yugoslavia.

Photographs

A large starboard bow view of *Régulus* appears in the 1957-58 to 1959-60 editions, and a starboard broadside view of *Vega* in the 1954-55 to 1963-64 editions.



PAVOT

1965, courtesy Dr. Giorgio Arra

30 U.S. MSC (Ex-AMS) Type "Acacia" Class

ACACIA (ex-AMS 69) COQUELICOT (ex-AMS 84) LISERON (ex-AMS 98)
 ACANTHE (ex-AMS 70) CYCLAMEN (ex-AMS 119) LOBELIA (ex-AMS 96)
 ACONIT (ex-AMS 66) EGLANTINE (ex-AMS 117) MAGNOLIA (ex-AMS 87)
 AJONC (ex-AMS 71) GARDENIA (ex-AMS 114) MARGUERITE (ex-AMS 94)
 AZALÉE (ex-AMS 67) GIROFLÉE (ex-AMS 85) MIMOSA (ex-AMS 99)
 BEGONIA (ex-AMS 83) GLAIEUL (ex-AMS 120) MUGUET (ex-AMS 97)
 BLEUET (ex-AMS 116) GLYCINE (ex-AMS 118) PAVOT (ex-AMS 124)
 CAMELIA (ex-AMS 68) JACINTHE (ex-AMS 115) PERVENCHE (ex-AMS 141)
 CHRYSANTHEME (ex-AMS 113) LAURIER (ex-AMS 86) PIVOINE (ex-AMS 125)
 RENONCULE (ex-AMS 142)
 RESÉDA (ex-AMS 126)

Displacement: 370 tons standard (405 tons full load)
 Dimensions: 136½ (pp.), 141 (o.a.) × 26 × 8½ feet
 Guns: 2—20 mm. AA.
 Machinery: 2 General Motors diesels, 2 shafts. B.H.P.: 1,200=13 kts. (8 kts. when sweeping)
 Oil fuel: 40 tons
 Radius: 2,500 miles at 10 kts.
 Complement: 38 (3 officers, 35 men)

General

The U.S.A. agreed in Sep. 1952 to allocate to France in 1953, 36 new AMS (later re-designated MSC) under the Mutual Defence Assistance Programme, but only 30 were finally transferred to France in 1953-55. Three were returned to the U.S.A. after delivery to Saigon for Indo-China, and two of these were allocated to Japan (AMS 95 and 144). Three (AMS 139, 140, 143) were not delivered, having been allocated to Spain. Auxiliary motor minesweepers constructed throughout of wood or other materials with the lowest possible magnetic attraction to attain the greatest possible safety factor when sweeping for magnetic mines. All named after flowers. *Eglantine*, *Lobelia*, and *Pivoine* are tenders to the Naval School.

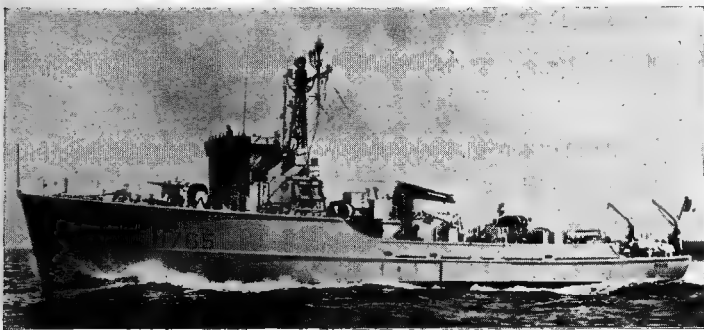
Building

All built in the United States in 1951-54. *Acacia* was launched on 28 Mar. 1953, *Aconit* on 27 Mar. 1953, and *Azalée* on 9 June 1953.

Photographs

A larger port broadside view of *Coquelicot* appears in the 1954-55 to 1959-60 editions, and a starboard view of *Pervenche* in the 1961-62 to 1964-65 editions.

Coastal Minesweepers—continued



MERCURE courtesy M. Henri Le Masson

I Special Type

MERCURE

Displacement: 333 tons light, 362 tons normal (380 tons full load)
Dimensions: 137½ (pp.), 145½ (o.a.) × 27 × 8½ feet
Guns: 2—20 mm. AA.
Machinery: 2 Mercedes-Benz diesels, 2 shafts, Kamewa variable pitch propellers. B.H.P.: 4,000=15 kts.
Oil fuel: 48 tons
Radius: 3,000 miles at 15 kts.
Complement: 48

Construction
Ordered in France from Mécaniques de Normandie (who have built six sister ships for the Federal German Navy) under the "off-shore" programme. Laid down in Jan. 1955. Launched on 21 Dec. 1957. Completed in Dec. 1958. Somewhat different from the "Sirius" class and with the same method of construction as the United States-built "Acacia" class. Stated to be a very successful model.



LA DUNKERQUOISE courtesy M. Henri Le Masson

6 Ex-Canadian "Bay" Type
"La Dunkerquoise" Class

LA BAYONNAISE (ex-Chignecto)	LA LORIENTAISE (ex-Miramchi)
LA DIEPPOISE (ex-Chaleur)	LA MALOULINE (ex-Cowichan)
LA DUNKERQUOISE (ex-Fundy)	LA PAIMPOLAISE (ex-Thunder)

Displacement: 390 tons standard (412 tons full load)
Dimensions: 140 (pp.), 152 (o.a.) × 28 × 8½ feet
Guns: 1—40 mm. AA.
Machinery: General Motors diesels, 2 shafts. B.H.P.: 2,400=16 kts. (max.).
Oil fuel: 52 tons
Radius: 4,500 miles at 11 kts.
Complement: 43 (4 officers, 39 men)

General
La Bayonnaise (launched on 12 May 1952) La Malouine (launched on 12 Nov. 1951) and La Paimpolaise (launched 17 July 1953) were transferred to the French flag at Halifax on 1 Apr. 1954. La Dunkerquoise (launched in Apr. 1953) on 30 Apr. 1954, and La Dieppoise (launched on 21 June 1952 and La Lorientaise (launched in 1953) on 10 Oct. 1954. All similar to the "Bay" class in the Royal Canadian Navy. La Bayonnaise and La Dunkerquoise left Brest in Apr. 1961 for the Pacific to relieve Lotus and Tiare in New Caledonia and Tahiti, respectively. La Dieppoise is at Djibouti, La Malouine is at Diego Suarez, and La Lorientaise and La Paimpolaise are in New Caledonia and Tahiti, respectively.
As these ships are used on "colonial" service they have been air conditioned.

DIVING TENDER (Batiment de Recherches Sous Marines)

INGÉNIEUR ÉLIE MONNIER (ex-German trawler Albatros)

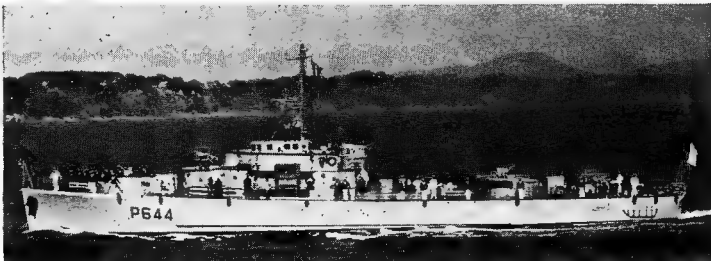
Displacement: 280 tons standard (350 tons full load)
Dimensions: 111½ × 24 × 10 feet
Machinery: Diesel, 1 shaft. Speed: 12 kts.
Range: 1,500 miles
Complement: 19

General
Former German trawler. Built by D. W. Kremer Schiffwert Elmshorn in 1944. Fitted for ocean research. Photograph in the 1957-58 to 1961-62 editions.

PORT DEPOT SHIPS

General
Former battleships, cruisers, etc., now obsolete, are classed as port depot ships:—There are the battleships Jean Bart at Toulon and Richelieu at Brest, the heavy cruiser Ocean (ex-Suffren) at Toulon, the light cruiser Montcalm at Toulon, all used as barracks; and the former aircraft carrier Béarn hull at Toulon. Also the flotilla leaders (ex-light cruisers) Chateaufort and Guichen, and a number of other ships including Voltigeur.

PATROL VESSELS (Escorteurs Côtiers)



L'ADROIT Added 1960, French Navy, Official

14 "Le Fougueux" Class

L'ADROIT (6 Sep. 1958)	L'ETOURDI (5 Feb. 1958)
L'AGILE (26 June 1954)	LE FOUGUEUX (31 May 1954)
L'ALERTE (5 Oct. 1957)	LE FRINGANT (6 Feb. 1958)
L'ATTENTIF (10 July 1958)	LE FRONDEUR (26 Feb. 1959)
L'ARDENT (17 July 1958)	LE HARDI (17 Sep. 1958)
L'EFFRONTÉ (27 Jan. 1959)	L'INTREPIDÉ (12 Dec. 1958)
L'ENJOUE (5 Oct. 1957)	L'OPINIATRE (4 May 1954)

Displacement: 325 tons standard (400 tons full load)
Dimensions: 170 (pp.) × 23 × 6½ feet
Guns: 2—40 mm. Bofors AA., 2—20 mm. AA.
A/S weapons: 1 hedgehog, 4 D.C. mortars (and 2 D.C. racks), Sonar in L'Agile, Le Fougueux, L'Opiniatre; others have a new 120 mm. ASM mortar forward, 2 D.C.T., 1 D.C. rack
Tubes: L'Intrepide has a tube mounted on the stern
Machinery: 4 Pielstick-SEMT light and fast diesel engines coupled 2 by 2: B.H.P.: 3,240=18.7 kts., 22 kts. on trials)
Radius: 3,000 miles, at 12 kts., 2,000 miles at 15 kts.
Complement: 62 (4 officers, 58 men)

General
L'Agile, Le Fougueux and L'Opiniatre were built in France under a U.S.A. off-shore order. Five more were built under the 1955 and six under the 1956 estimates. These have a different armament, slightly different appearance, and modified bridge. Le Hardi is employed on fishery protection duties in the North Sea, English Channel, Bristol Channel, off Shetland Islands, Orkney Islands and Norway.
Photographs
Photographs of Le Fougueux appear in the 1956-57 and 1957-58 editions, and of L'Opiniatre in the 1958-59 and 1959-60 editions.



LA COMBATTANTE 1964, French Navy, Official

LA COMBATTANTE

Displacement: 182 tons standard (201 tons full load)
Dimensions: 147½ × 24½ × 6½ feet
Guns: 1—40 mm. AA.
Guided weapons: 1 rocket launcher for SS 11
Machinery: 2 SEMT-Pielstick diesels, 2 shafts. Variable pitch propellers. B.H.P.: 3,200=23 kts.
Radius: 2,000 miles at 12 kts.
Complement: 25

General
Prototype of a new series of patrouilleurs garde-côtes or light patrol vessels. Authorised under the 1960 Programme. Built by Constructions Mécaniques de Normandie. Laid down in Apr. 1962, launched on 20 June 1963, and completed on 1 Mar. 1964. Of wooden and plastic laminated non-magnetic construction.

Disposals
Hussard (ex-PC 1235), the sole survivor of a numerically large class of former United States submarine chasers, was officially deleted from the list in 1965. Dague (ex-PC 1561) was scrapped in 1963. For disposals and transfers of this type, known in the French Navy as the "Carabinier" Class, formerly rated as Escorteurs, but subsequently reclassified as Patrouilleurs, see the 1961-62 edition.

PATROL LAUNCHES (Chasseurs de Sousmarins)

2 Ex-U.S. SC Type

M 691 (ex-CH 101, ex-SC 524)	P 706 (ex-CH 135, ex-SC 1030)
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Displacement: 110 tons standard (138 tons full load)
Dimensions: 107½ (w.l.), 110½ (o.a.) × 18½ × 6½ feet
Machinery: 2 G.M. diesels, 2 shafts. B.H.P.: 1,000=15 kts.

General
Of wooden construction. Launched in 1943. Acquired from the U.S.N. in 1944. Formerly rated as Submarine Chasers, but re-rated as patrol vessels in 1951. P 690, 691, 695, 696, 697, 711, 713, 714, 715 were converted into inshore minesweepers in 1954, but were discarded as such in 1958-59, although Nos. 690 and 691 still exist but as auxiliaries and not on the Navy list of fighting vessels.

Disposals
P 731 was scrapped in 1956 and sister ship P 736 was given back to United States Navy in 1956. P 704 was scrapped in 1957 and P 701 was condemned in 1958. P 702 was scrapped in 1959. M 714 was withdrawn from active service on 1 Oct. 1961 and M 711 on 1 Jan. 1962. No. 723 was deleted from the list in Mar. 1963. P 696, P 703 and P 713 were condemned in 1964. Nos. 690, 694, 709, 718, 722 and 724 are still used as hulks or vedettes without armament for auxiliary purposes.
M 691 is a buoyage vessel, P 706 is an accommodation vessel for diver teams (converted in 1959 and 1960).

Transfers
P 699 was transferred to the Ivory Coast Republic and re-named Patience and P 700 was transferred to the Senegalian Republic and re-named Senegal.

MAINTENANCE SHIPS



RHIN

1963, French Navy, Official

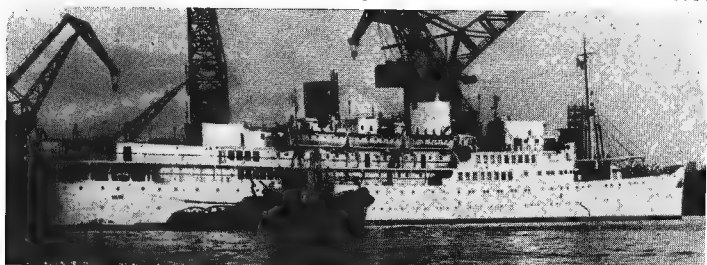
LA GARONNE Repair Workshop (*Bâtiment de soutien logistique, version Atelier*)
LA LOIRE Minesweeper Support (*Bâtiment de soutien logistique, version Dragueurs*)
LA RANCE Damage Control (*Bâtiment de soutien logistique, version Sécurité*)
LE RHIN Electronic Service (*Bâtiment de soutien logistique, version Electronique*)
LE RHONE Submarine Depot (*Bâtiment de soutien logistique, version Sousmarins*)

Displacement: 2,075 tons standard (2,375 tons full load) see notes
Dimensions: 300×43×12 feet (*Garonne* 333×45½×12½ feet)
Guns: 3—40 mm. AA.
Aircraft: 2 Alouette helicopters
Landing craft: 2 Personnel (LCP)
Machinery: 2 SEMT-Pielstick diesels. 1 shaft. B.H.P.: 3,300=16 kts.
Radius: 6,000 miles at 12 kts.
Complement: 71 (5 officers, 66 men) plus *circa* 100 technicians, except *Garonne* 221 (10 officers, 211 men)

General

It is officially stated that all these maintenance and logistic support ships have the same basic characteristics, hull and machinery, differing only in their respective specialisation, except *Garonne* which has one more deck and larger workshops and consequently a heavier displacement of 2,320 tons standard. She is to be commissioned as a repair ship for the Pacific Nuclear Experimental Station (CEP). All were built by Lorient Dockyard.

Name	Pennant No.	Programme	Laid down	Launched	Completed
<i>La Garonne</i>	A 617	1963	1964	8 Aug. 1964	
<i>La Loire</i>	A 615	1962	27 Dec. 1963	1964	1965
<i>La Rance</i>	A 618	1963	1964		
<i>Le Rhin</i>	A 621	1959	May 1961	17 Mar. 1962	1 Mar. 1964
<i>Le Rhone</i>	A 622	1960	Apr. 1962	8 Dec. 1962	1964



MAINE

1965, French Navy, Official

MAINE (ex-*El Mansour*) A 611
Displacement: 5,420 tons
Measurement: 5,818 tons gross, 1,320 tons deadweight
Dimensions: 399½×53½×18 feet
Machinery: 2 Parsons turbines. 2 shafts. S.H.P.: 7,500=15 kts.
Boilers: 2 (2 landed)
Complement: 115 (9 officers and 106 men)

MEDOC (ex-*Sidi Ferruch*) A 612
Displacement: 4,430 tons
Measurement: 3,988 tons gross
Dimensions: 372½×49½×23 feet
Machinery: 2 Rateau turbines. 2 shafts. S.H.P.: 4,750=15 kts.
Boilers: 2

MORVAN (ex-*Sidi Mabrouk*) A 613
Displacement: 4,090 tons
Measurement: 3,760 tons gross
Dimensions: 371½×51½×23½ feet
Machinery: 2 Parsons turbines. 2 shafts. S.H.P.: 4,600=15 kts.
Boilers: 2

General

These three passenger vessels designed and built for Algeria by F. C. Medit. (22 Oct. 32) *Maine*, Bretagne/Loire (14 May 1949) *Medoc*, and J. S. White (22 Apr. 1948) were purchased in Sep. 1963 and fitted out as barrack and accommodation ships for the maintenance of the Nuclear Establishment of Polynesia, the experimental base in the Pacific where they are manned by naval personnel.

MAURIENNE (ex-*M/S Brazza*) A 637
Displacement: 8,700 tons standard (9,100 tons full load)
Measurement: 9,065 tons gross, 5,946 tons deadweight
Dimensions: 480 (o.a.)×62×22½ feet
Machinery: 2 Doxford diesels. 2 shafts B.H.P.: 8,800=17.5 kts.

General

Former twin screw motor passenger ship of the *Chargeurs Réunis* (West Africa Coast Service). Built by Swan, Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne. Launched on 14 Oct. 1947. Completed in 1948. Purchased in Nov. 1964. Refitted and converted at Brest in 1965. To be commissioned in Jan. 1966. To be operated as a personnel transport between France and CEP (Pacific nuclear experimental centre).

HENRI POINCARÉ (ex-*Maina Marasso*) A 603
Displacement: 20,000 tons full load
Measurement: 12,885 tons gross
Dimensions: 565×74×31 feet
Machinery: 1 double reduction turbine. 1 shaft. Speed=15 kts.
Boilers: 2 high pressure water tube

General

Built by Cantieri Riuniti de Adriatico, Monfalcone. Launched in Oct 1960. Former Italian single screw tanker. Purchased in Sep. 1964. Arrived in Brest dockyard on 1 Oct. 1964 to undergo complete transformation into a radar picket ship and guidance vessel attached to the experimental guided missile station—in the Landes (S.W. France). The conversion to base observation ship is scheduled to be completed in spring 1967 for re-commissioning in July 1967. Named after the universally known mathematician and scientist (1854-1912) whose name was borne by the pre-Second World War fleet submarine of the "Pascal" class.

SURVEY SHIPS (Annexes Hydrographiques)



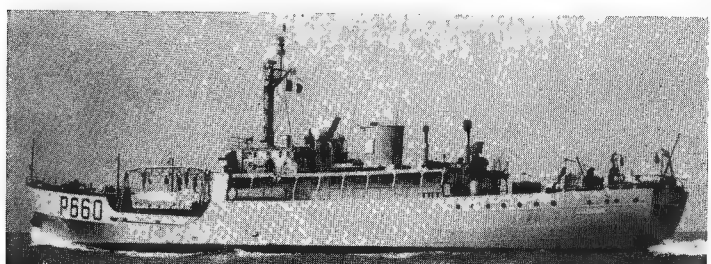
BOUSSOLE

1965, French Navy, Official

ASTROLABE P 681
Displacement: 350 tons standard
Dimensions: 137½×27×8½ feet
Guns: 1—40 mm. AA. 2 M.G.
Machinery: 2 Baudouin DV.8 diesels. 1 shaft. Variable pitch. B.H.P.: 800=13 kts. (max.)
Radius: 4,000 miles
Complement: 34 (3 officers, 31 men)

Construction

Authorised under the 1961 Programme. Specially designed for the Hydrographic Service for surveys in tropical waters. Built by Chantiers de la Seine Maritime, Le Trait. Laid down in 1962, launched on 27 May and 11 Apr. 1963, respectively, and commissioned in 1964.



LA RECHERCHE

1964, French Navy, Official

LA RECHERCHE (ex-*Guyane*) P 660
Displacement: 780 tons standard, (1,047 tons full load)
Measurement: 965 tons gross
Dimensions: 203½ (pp.), 221½ (o.a.)×34½×13 feet
Machinery: 1 Werkspoor diesel. B.H.P.: 1,535=13.5 kts.
Complement: 72 (5 officers and 67 men)

Construction

Former passenger motor vessel built by Chantiers Zeigler at Dunlirk. Launched on 17 Sep. 1951. Purchased in 1960 and converted by Cherbourg Dockyard into a surveying ship. Commissioned into the French Navy in Mar. 1961 and her name changed from *Guyane* to *La Recherche*. To improve stability she was fitted with bulges.

There are two other large surveying vessels, *Beautemps-Beaupré* and *La Pérouse*, see under frigates on earlier page.

Disposal

The old survey ship of the frigate type, *Amiral Mouchez*, F 752, was officially deleted from the list in 1965.

ALIDADE (ex-*Evelynne Marie*) P 682
Displacement: 120 tons (approx.)
Dimensions: Length 78 feet
Machinery: 2 diesels. 1 shaft. Variable pitch. B.H.P.: 1,250=9 kts.
Complement: 11 men

Construction

Two small fishing trawlers purchased by the Navy and converted into surveying vessels of a new type by the Constructions Mécaniques de Normandie at Cherbourg to act as tenders to *La Recherche* (see above). Wooden hull and steel upperworks. *Alidade* was set afloat after conversion on 15 Nov. 1962 and *Octant* on 20 Dec. 1962. Commissioned in 1963.

Disposals

The surveying vessel of the Ex-German whaler type, *Estafette* (ex-B 282, ex-Treff 6) was discarded in 1963. Sister ship *Sentinelie* (ex-B 284, ex-Treff 2) was scrapped in 1960. *Alidade* (ex-German M 4621, ex-Van Rozeland) was scrapped in 1959. *Ingénieur-Hydrographe Nicolas* (ex-Otto Brohan, ex-B 206) and *Octant* (ex-German M 4626 ex-Ostfriesland) were scrapped in 1960.

AMMUNITION SHIP

I New Construction

ACHERON A 620
Displacement: 6,485 tons standard (10,250 tons full load)
Dimensions: 482½×70½×21½ feet
Machinery: 2 SEMT-Pielstick diesels. 1 shaft. B.H.P.: 11,500=18 kts.

Construction

Provided for under the 1961 Programme. Under construction at Brest Dockyard. Laid down in 1965 for completion in Apr. 1968.

TRAINING SHIPS (Voiliers-École)

LA BELLE-POULE A 650
Displacement: 227 tons
Dimensions: 128 (o.a.)×23½×11½ feet
Machinery: Sulzer diesel. B.H.P.: 120=6 kts.

General

Auxiliary sail vessels. Built by Chantiers de Normandie (*Fécamp*) in 1932. Accommodation for 3 officers, 30 cadets, 5 petty officers, 12 men. Attached to Navy School.

GRANDE HERMINE (ex-*Menestral*)

General

Ex-fishing boat, built in 1936. Purchased in 1963 in replacement for *Dolphin* (ex-Simone Marcelle) as the School of Manoeuvre Training Ship.

MUTIN A 652

General

A small coastal tender attached to l'École de pilotage (the School of Pilotage).

SEAWARD PATROL CRAFT



VC II (P 761)

1959, Marlus Bar

5 VC Type (Vedettes de Surveillance Côtière)

VC 1 P 751	VC 3 P 753	VC 7 P 757	VC 10 P 760
VC 2 P 722			
Displacement:	75 tons standard (82 tons full load)		
Dimensions:	104½ × 15½ × 5½ feet		
Guns:	2—20 mm. AA.		
Machinery:	2 Mercedes-Benz diesels. 2 shafts. B.H.P.: 2,700=28 kts.		
Radius:	1,500 miles at 15 kts.		
Complement:	15		

General

Seaward defence motor launches of a new type. All completed in 1958 and 1959. Built by the Construction Mécaniques de Normandie, Cherbourg (VC 3, 7, 10), and Lürrsens in Germany (VC 1 and 2).

Transfers

VC 11 (P 761) was sold to Tunisia, being handed over to the Tunisian Navy on 22 Sep. 1959. VC 12 (P 762) was transferred to the Royal Moroccan Navy on 15 Nov. 1960 and renamed *Es Sabia*. VC 4 (P 754) was transferred to the Republic of the Congo on 16 Nov. 1962. VC 5 (P 755) was transferred to the Senegal on 19 Jan. 1963. VC 9 (P 759) was transferred to the Republic of the Côte d'Ivoire (Ivory Coast) in 1963. VC 8 (P 758) was transferred to Madagascar in 1963 and renamed *Mallaka*. VC 6 (P 756) was transferred to the Cameronian Republic on 7 Mar. 1964.

Disposals of HDML Type

Of the 32 former British harbour defence motor launches, several were sunk by the enemy in Indo-China. Others were scrapped. VP 764 was discarded in 1957.

VP 762 was loaned to the Royal Khmère Navy. VP 748 was transferred to the Royal Khmère Navy in 1956, and VP 749 and VP 765 later. VP 747 (ex-HDML 1423) was transferred to the Cameronian Republic in 1961 and VP 775 (ex-VP 25, ex-HDML 1021) was transferred to the Gaboon in 1961. The last survivor, VP 768 (ex-VP 6, ex-HDML 1228) was transferred to the Cameronian Republic in June 1962.

Disposals of U.S. ML Type

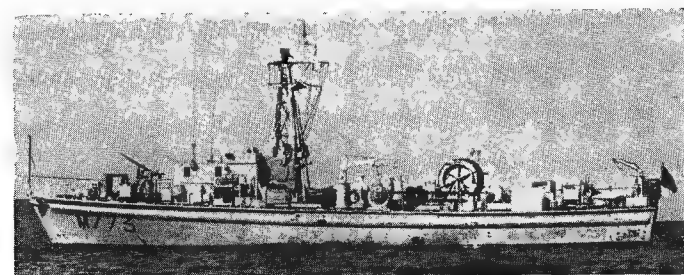
Of the former motor launches of United States construction, VP 772 (ex-VP 51) was deleted from the list in 1964, and VP 773 (ex-VP 52) will be condemned.

Fairmile ML Type

Oiseau des Isles, P 780, former Fairmile motor launch, was seized by the Customs authority and allocated to the Navy for training "fighting swimmers".

INSHORE MINESWEEPERS

(Dragueurs de Rade et d'Estuaire)



VIOLETTE

1957, courtesy M. Henri Le Masson

15 British Type. "Ham" Class

ARMOISE M 772 (ex-Wexham)	JASMIN M 766 (ex-Stedham)
AUBEPINE M 781 (ex-Rendlesham)	JONQUILLE M 787 (ex-Sulham)
CAPUCINE M 782 (ex-Petersham)	MYOSOTIS M 788 (ex-Riplingham)
DAHLIA M 786 (ex-Whippingham)	OEILLET M 774 (ex-Isham)
GERANIUM M 784 (ex-Tibensham)	PAQUERETTE M 775 (ex-Kingham)
HIBISCUS M 785 (ex-Sparham)	PETUNIA M 789 (ex-Pineham)
HORTENSIA M 783 (ex-Mileham)	TULIPE M 771 (ex-Frettenham)
	VIOLETTE M 773 (ex-Mersham)

Displacement:	120 tons standard (140 tons full load)
Dimensions:	100 (pp.), 106½ (o.a.) × 21½ × 5½ feet
Guns:	1—40 mm. Bofors AA. or 1—20 mm. Oerlikon AA. forward
Machinery:	2 Paxman diesels. B.H.P.: 550=14 kts. (9 kts. when sweeping)
Oil fuel:	15 tons
Complement:	12 (2 officers, 10 men)

General

Former British inshore minesweepers of the "Ham" class transferred to France under the American "off-shore" procurement programme. First, M 771, was delivered in Dec. 1954. Last, M 789 was handed over at Hythe on 10 Nov. 1955.

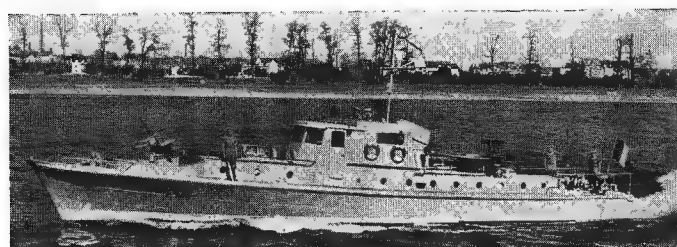
Disposals of SC Type

The eight remaining converted inshore minesweepers of the former patrol (chasseur) type, M 690, M 691, M 695, M 711, M 713, M 714 and M 715 were declassified or condemned in 1959. M 697 was condemned in 1958.

Disposals of YMS Type Coastal Minesweepers

The seven remaining coastal minesweepers of the ex-U.S. YMS type, latterly rated as *Batiments de Servitude* (service vessels), *Anémone*, *Asphodèle*, *Basilic*, *Clemotite*, *Genêt*, *Héliotrope* and *Perce-Neige*, were all condemned by 1965, except *Asphodèle* and *Genêt*, it is officially stated. See full list of the transfers and disposals of this class in the 1962-63 edition.

PATROL BOATS (Ex-Flotilla du Rhin)



P 9781

1956, courtesy M. Henri Le Masson

P 9783	P 9784	P 9785	P 9786	P 9787	P 9788
Displacement:	45 tons				
Dimensions:	79½ × 14½ × 4½ feet				
Guns:	8—0.5 M.G. (four twin mountings)				
Machinery:	2 Daimler-Benz diesels. 2 shafts. B.H.P.: 1,000=18 kts.				

Construction

Built by Burmeister-Brême (P 9783, P 9784, P 9785) and Bodanwerft-Kressbronn. Completed in 1954. It was officially stated in 1965 that these boats are still in active service.

Disposals

The auxiliary patrol launch *Rambervillers* was deleted from the list in 1963. She was a war prize with the *Ormont* which was retired from service in Feb. 1958. The former Rhine Flotilla support ships *Hoche*, L 981, *Kleber*, L 982, and *Marceau*, L 980, were officially deleted from the list in 1965. The former Rhine Flotilla patrol boats P 9781 and P 9782 (35 tons, duralumin hull), P 9796 (ex-41), P 9787 (ex-42) and P 9798 (ex-43), all 23 tons, P 9740, P 9741, P 9742 and P 9743 (12 tons, peralumin hull), P 9794 (10 tons, hydrofoil), and P 9790 and P 9791 (2 tons, fixed foils) were also officially deleted from the list in 1965.

Flotilla Notes

There are also seven police vedettes of 6.3 tons (Y 6670, Y 6671, Y 6672, Y 6677, Y 6678, Y 6679, and Y 6681); 2 control patrol launches of 10.2 tons (Y 6640, Y 6641); two vedettes of 6 tons with fixed foils (P 9792, P 9793); six river tugs; and 31 landing craft (LCM).

Transfers

Nine control patrol launches of 10.2 tons. Y 6642-Y 6650, one river tug, and 9 landing craft (LCM) were transferred to the Bundeswehr in 1957-58.

ENCLUME A 790

Displacement:	350 tons
Dimensions:	163½ × 21½ × 4½ feet
Machinery:	3 M.W.M. motors. B.H.P.: 660=10 kts.

General

An old German LCM salved in 1952 and refitted. Repair ship, *Les Vosges* (ex-Washington, ex-Brunehlide), was transferred to the Bundeswehr in Dec. 1957).

AMIRAL EXELMANS (ex-Germania) A 793

Displacement:	220 tons
Dimensions:	130½ × 21 × 4½ feet
Machinery:	1 MAN diesel. 1 shaft. B.H.P.: 230=9.5 kts.

General

Ex-river passenger boat built in 1927. Purchased in 1952. Used for the training of pilots. Pennant No. A 793.

TRANSPORTS

BERRY (ex-M/S Médoc) A 644

Displacement:	2,700 tons
Measurement:	1,203 tons gross, 1,552 tons deadweight
Dimensions:	284½ (o.a.) × 38 × 15 feet
Machinery:	2 MWM diesels coupled on one shaft. B.H.P.: 2,400=15 kts.

General

Built by Roland Werft, Bremen. Launched on 10 May 1958. Purchased in Oct. 1964 from Cie Worms for the Pacific experimental station, renamed in 1964 and refitted in 1965. Classed as a refrigerated transport. For CEP (Centre Experimental Pacific) like *Verdon* below.

VERDON (ex-Josta) A 634

Displacement:	6,500 tons
Measurement:	3,100 tons gross, 4,275 tons deadweight
Dimensions:	344½ × 48½ × 20 feet
Machinery:	1 B & W 5-cyl. diesel. 1 shaft.

General

Former Norwegian motor ship. Built in 1952. Purchased in June 1964 by the Army white and light products carrier service but named and commissioned by the Navy for CEP.

ARIEL Y 604

Displacement:	225 tons full load
Dimensions:	132½ × 24½ × 10½ feet
Machinery:	MGO diesels.. 2 shafts. B.H.P.: 1,640=16 kts.

KORRIGAN Y 661

SYLPHE Y 710

Displacement:	171 tons standard (189 tons full load)
Dimensions:	126½ × 22½ × 8½ feet
Machinery:	MGO diesel, 1 shaft. B.H.P.: 600=12 kts.

Construction

Small transports for personnel, built by Chantiers Franco-Belge in 1959-60 (*Sylphe*) and 1963-64 (*Ariel* and *Korrigan*).

FALLERON (ex-German Welle) A 614

Displacement:	150 tons (247 tons full load)
Machinery:	Diesels. Speed: 7 kts.

General

Herauld was removed from the effective list in 1955. *Alphée* became a station ship in 1958. *Ter* (ex-German *Heinrich*) was condemned in 1964.

GAPEAU (ex-German B 284, ex-V 625, ex-Johan Schultzt) A 616

Displacement:	300 tons
Machinery:	Deutz diesels. B.H.P.: 500=9 kts.

General

Photograph in 1957-58 and earlier editions. *Cap Ferrat* was stricken in 1960, and *Malène* (ex-German B 262, ex-V 620, ex-Köln) in Aug. 1963.

TREBERON (ex-B 254) Y 712

Displacement:	120 tons
Dimensions:	82 × 20 × 9 feet
Machinery:	Diesel. B.H.P.: 120=8.5 kts.

General

Former German danlayer used as small personnel transport for local service. Rated as Patrol Craft. Sister ship *Rachgoun* was scrapped in 1957.

LANDING SHIPS



TRIEUX 1960, French Navy, Official
BDC (Rated as *Batiments de Debarquement de Chars*)
ARGENS (BDC 2) **BIDASSOA (BDC 5)** **DIVES (BDC 4)**
BLAVET (BDC 3) **TRIEUX (BDC 1)**

Displacement: 1,400 tons standard, 1,765 tons normal (4,000 tons full load).
Dimensions: 328 (o.a.) x 50 x 14 feet
Guns: 2—40 mm. AA., 2—20 mm. AA. (Bidassoa, Blavet, Dives 1—4.7 inch mortar, 3—40 mm. AA.
Machinery: SEMT-Pielstick diesels, 2 shafts. B.H.P.: 2,000=11 kts.
Radius: 18,500 miles at 10 kts.
Complement: 85 (6 officers and 79 men). Plus 170 troops (normal)

General
Built by Chantiers Seine Maritime (Bidassoa, Dives) and Chantiers de Bretagne, Nantes (others). Launched on 7 Apr. 1959, 30 Dec. 1960, 15 Jan. 1960, 29 June 1960 and 6 Dec. 1958, respectively All commissioned in 1960-61. Can carry: 4 LCVPs, 1,800 tons of freight, 335 (up to 870 if required) troops (329 in bunks, 552 in hammocks).

CHÉLIFF (ex-U.S. LST 874) **ODET (ex-U.S. LST 815)**
Displacement: 1,625 tons standard (4,030 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.) x 50 x 14 (max.) feet
Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,700=11 kts.

General
Former U.S. tank landing ships, converted and used as transports. Scheduled to be withdrawn from active service in 1961, but restored to the Navy List in 1963.

Disposals
Adour (ex-LST 860), seriously damaged, was raised to become an accommodation ship (removed to France), but was scheduled to be scrapped in 1958. Vire was scrapped in 1957, Golo (ex-LST 973) was discarded in 1960. Orne (ex-LST 508) and Rance (ex-LST 223) were condemned in Mar. 1961, and Laita (ex-LST 177) was withdrawn in Jan. 1962 and used as a port depot ship.

LANDING CRAFT



EDIC 6 1959, Marius Bar
6 EDIC (*Engins de Debarquement Infanterie Chars*)

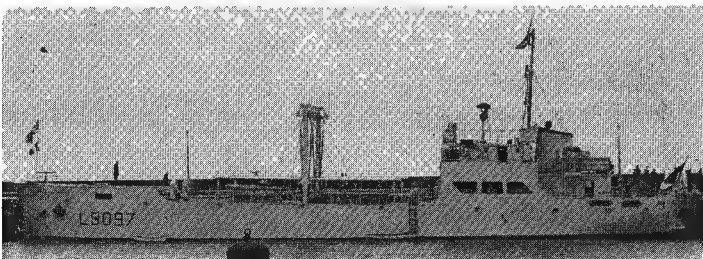
EDIC 1 (7 Jan. 1958) **EDIC 3** (17 Apr. 1958) **EDIC 5** (11 Apr. 1958)
EDIC 2 (21 Feb. 1958) **EDIC 4** (24 July 1958) **EDIC 6** (11 Oct. 1958)

Displacement: 292 tons standard (642 tons full load)
Dimensions: 193½ x 39½ x 4½ feet
Guns: 2—20 mm. AA.
Machinery: MGO diesels, 2 shafts. B.H.P.: 1,000=8 kts.
Complement: 16 (1 officer, and 15 men)

General
EDIC 1 to 4 were built by C. N. Franco Belge. EDIC 5 and 6 by Toulon Dockyard. Launch dates above. All completed in 1958-59. Pennant Nos. L9091 to L 9096.

4 EDA (*Engins de Debarquement Ateliers*)

General
Same hull and engine characteristics as the EDIC type, but equipped as repair ships. Built in 1964 and 1965. No names allocated.



ISSOLE 1964, courtesy Godfrey H. Walker, Esq.

Displacement: 600 tons full load
Dimensions: 160½ x 23 x 7½ feet
Machinery: 2 diesels. B.H.P.: 1,000=12 kts.

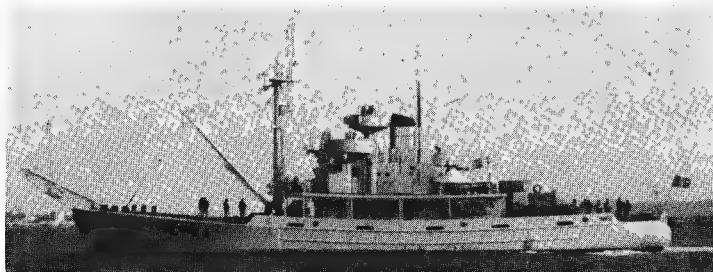
General
Built at Toulon in 1957-58. Coaster with bow doors and ramp. Pennant No. L 9097.

LCT 9062 **LCT 9098** **LCT 9099**

General
Former British tank landing craft (LCT 3s), LCT 9098 (ex-1274) was purchased in 1963, and is now fitted as a workshop.

Disposals
LCT 9060, 9061, 9063, 9064, 9066, 9067 were discarded in 1956. LCT 9085 and LCT 9091 were transferred to the Royal Khémre Navy. LCG 9059 and LCT 9083 were scrapped. LCT 9068 was condemned in 1957, LCT 9072 in 1960, LCT 9069 and LCT 9071 in Mar. 1961, LCT 9070 on 6 July 1961, and LCT 9065 in 1963.

BOOM DEFENCE VESSELS

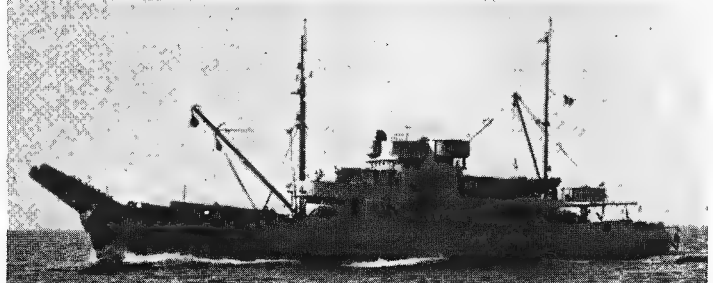


CIGALE 1965, courtesy Admiral M. Adam
5 "Off-shore" U.S. AN Type

CIGALE (ex-AN 98) **FOURMI (ex-AN 97)** **SCARABÉE (ex-AN 94)**
CRIQUET (ex-AN 96) **GRILLON (ex-AN 95)**

Displacement: 560 tons standard (770 tons full load)
Dimensions: 149½ x 33½ x 10½ feet
Guns: 1—40 mm. Bofors, 4—20 mm. AA.
Machinery: 2, 4-stroke diesels, electric drive. B.H.P.: 1,600=12 kts.

General
U.S. AN type "Off-shore" orders. Sister ship G 6 was allocated to Spain. Criqueet was launched on 3 June 1954, Cigale on 23 Sep. 1954. Fourmi on 6 July 1954, Grillon on 18 Feb. 1954 and Scarabée on 21 Nov. 1953. Rated as Garbarres (*Mouilleur de Filets*). A photograph of Criqueet appears in the 1957-58 to 1964-65 editions.



ARAIGNEE 1960, Giorgio Arra
3 Ex-U.S. AN Type Netlayers

ARAIGNEE (ex-Hackberry, ex-Maple) **TARENTULE (ex-Pepperwood, ex-Walnut)**
SCORPION (ex-Yew)

Displacement: 560 tons standard (850 tons full load)
Dimensions: 146 (w.l.), 163 (o.a.) x 30½ x 11½ feet
Guns: 1—3 inch AA., some M.G.
Machinery: Diesel-electric. H.P.: 800=12 kts.
Complement: 39

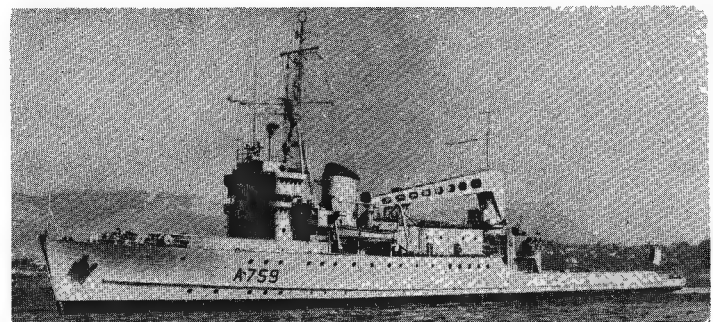
General
Launched on 6 Mar. 1941, 25 Sep. 1941 and 25 Aug. 1941, respectively.

2 Former Aircraft Tender Type

COMMANDANT ROBERT GIRAUD (ex-German *Immelmann*) A 755

Displacement: 1,000 tons standard (1,380 tons submerged)
Dimensions: 256 x 36 x 12 feet
Machinery: 4 MAN diesels, 2 shafts. B.H.P.: 8,800=20.5 kts.
Radius: 4,000 miles at 18 kts., 7,800 miles at 12 kts.
Complement: 77 (6 officers and 71 men)

General
Former German aircraft tender. Built by Norderwerft, Hamburg. Launched in 1941. Completed in Dec. 1941. Transferred by Great Britain in 1946. Re-rated as *Escorteur de deuxième Classe* in 1953. Aviso *Escorteur* 1953, Aviso 1955, and *Gabarre* 1963. Armament removed. A photograph of this ship appears in the 1964-65 edition.



MARCEL LE BIHAN 1965, French Navy, Official
MARCEL LE BIHAN (ex-German *Greif*) A 759

Displacement: 800 tons standard (1,000 tons full load)
Dimensions: 236½ x 34½ x 10½ feet (max.)
Guns: 4—20 mm. AA.
Radius: 2 MAN diesels, 2 shafts. B.H.P.: 4,400=16 kts.
Machinery: 2,000 miles at 13 kts.
Complement: 61 (5 officers and 56 men)

General
Former German aircraft tender. Built by Lubecker Fleudewerke. Launched in 1936. Completed in 1937. Transferred by U.S.A. in Feb. 1948. Re-rated *Escorteur de Deuxième Classe* early 1953, Aviso *Escorteur* 11 Aug. 1953, Aviso 1955 and *Gabarre* 1 Nov. 1959, 4.1 inch gun and 2—40 mm. removed, Tender for bathysphere *Archimede*.

2 Small Type

PATIENTE **PERSISTANTE**

General
Patiente 450 tons. Persistante 350 tons. Girafe and Persévérante were scrapped in 1957, Fidèle in 1958, Puissante in 1960, Agissante in 1961, Victorieuse in 1964.

OILERS (Transports Petroliers)



LA BAYSE
LA BAÏSE
Displacement: 4,500 tons light (12,100 tons full load)
Measurement: 5,300 tons deadweight
Dimensions: 433×52½×20½ feet
Guns: 4—40 mm. AA., 6—20 mm. AA.
Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 5,200=15 kts.
Boilers: 2 Penhoët
Oil fuel: 1,100 tons
Radius: 10,000 miles at 13 kts.
Complement: 120

General
Built by Ch. Worms, Le Trait, under the 1938 Programme. Rated as *Ravitailleur d'Escadre*. Launched in 1945. Of two sister ships *La Charente* was scrapped in 1960 and *La Mayenne* in 1961.

LA CHARENTE (ex-Beaufort) A 626
Displacement: 7,084 tons light (26,000 tons full load)
Measurement: 12,373 tons gross, 18,800 tons deadweight
Dimensions: 587½×72×30½ feet
Machinery: 1 General Electric geared turbine
Boilers: 2

General
Former Norwegian tanker built by Kaldnes mek. Veristad Tønsberg, in 1957. Purchased by the French Navy in May 1965 and adapted for the Pacific Experimental Station.

LA MAYENNE (ex-Caltex-Strasbourg)
Displacement: 10,172 tons light
Measurement: 18,000 tons deadweight
Dimensions: 559×71½×30½ feet
Machinery: 1 single geared Parsons turbine. S.H.P.: 8,260=16 kts.
Boilers: 2

General
Built by Seine Maritime. Launched on 22 June 1959. Former French tanker. Purchased late in 1964 for the Pacific Nuclear Experimental Centre.



LAC TONLE SAP
LAC TCHAMBON (ex-Anticline) A 629
LAC TCHAD (ex-Syndine) A 630
Displacement: 800 tons light (2,670 tons full load)
Measurement: 235×37×15½ feet
Dimensions: 3—20 mm. AA.
Guns: 2 Fairbanks-Morse diesels. B.H.P.: 1,150=11 kts.
Machinery: 6,300 miles at 11 kts.
Radius: 37
Complement: 37

General
Ex-American fuel oil barges. Acquired in Dec. 1944 and Mar. 1945. *Lac Noir* was scrapped in 1951, *Lac Pavin* in 1953.



LA SEINE (after modernisation)
LA SAÛNE A 628
LA SEINE A 627
Displacement: 7,350 tons light (23,800 tons full load)
Measurement: 16,870 tons deadweight
Dimensions: 525×72½×33 feet
Guns: 3—20 mm. AA.
Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 15,800=17 kts.
Boilers: 3 Penhoët
Complement: 200

General
Ordered as fleet tankers. After the war completed as merchant tankers. Returned to French Navy from charter company Sep. 1953. *La Seine* was fitted as a fleet replenishment ship in 1961, *La Saône* in 1962. Now rated as *Ravitailleurs d'Escadre*. They carry 11,500 tons of fuel, 300 tons of food, and have 75,000 l. tanks of wine. Photograph of *La Saône* in 1959-60 to 1961-62 editions.

ABER-WRACH (ex-CA 1) A 619
Displacement: 1,380 tons standard (3,400 tons full load)
Dimensions: 262½ (pp.), 284 (o.a.)×40×15½ feet
Guns: 1—40 mm. AA.
Machinery: 1 diesel. Variable pitch propeller. B.H.P.: 2,000=12 kts.
Radius: 5,000 miles at 12 kts.
Complement: 51 (2 officers and 49 men)

General
Authorised in 1956. Built at Cherbourg. Ordered in 1959. Laid down in 1961. The after part with engine room was launched on 24 Apr. 1963. The fore part was built on the vacated slip, launched and welded to the after part. Complete hull floated up on 21 Nov. 1963. Commissioned in 1964. Pennant No. A 619.

WATER CARRIERS

GIBOULÉE
Displacement: 450 tons light (1,369 tons full load)
Dimensions: 184×28½×13½ feet
Machinery: Sulzer diesels. B.H.P.: 1,000=11.5 kts.

General
Rated as regional supply ships. Crew 27. *Arrosair* was renamed *Liamone* in Mar. 1954. Photograph of *Liamone* in 1957-58 edition. Nos. A 741, A 740, A 750.

RUMMEL
Displacement: 630 tons light (1,450 tons full load)
Measurement: 650 tons deadweight
Dimensions: 176½×29½×14½ feet
Guns: 2—20 mm. AA.
Machinery: 2 Diesels. B.H.P.: 700=12 kts.

General
Sahel was completed in Aug. 1951, *Rummel* in 1952 by Chantiers Naval de Caen. Nos. A 635 and A 638. Photograph of *Sahel* in 1957-58 and earlier editions.

OASIS
Displacement: 335 tons standard (683 tons full load)
Measurement: 164½×27×9 feet
Dimensions: 2—20 mm. AA.
Guns: Triple expansion. 1 shaft. I.H.P.: 800=10 kts.

General
Built by A. C. Bretagne. No. A 751. Sister *Torrent* was scrapped in 1964.

AVERSE
BENZENE
General
Small water carriers (*Benzene* and *Formene* are fuel barges) of various displacements (*Cataracte* 330 tons), *Cascade*, *Durance* and *Fralche* were scrapped in 1957, *Aube* in 1958, *Ardèche* in 1960, *Casamance* and *Zôghouan* in 1963, *Aiguade* in 1964.

BRUINE
CATARACTE
DELUGE
FONTAINE
FORMENE
MIRAGE
ONDEE

FLEET TUGS

ACTIF
COURAGEUX
Displacement: 230 tons
Dimensions: 92×26×13 feet
Machinery: 1 MGO diesel. B.H.P.: 1,050=11 kts.
Radius: 2,400 nautical miles
Complement: 15

Construction
Courageux, *Hercule*, *Robuste* and *Valeureux* were completed in 1960 and the other four in 1962-63 at Le Havre, F. Ch. de la Méditerranée for service at Cherbourg (*Lutteur*), Toulon (*Actif* and *Travailleur*) and Brest (*Laborieux*).

HIPPOTAME (ex-Utrecht)
Measurement: 524 tons gross
Machinery: Diesel-electric. S.H.P.: 2,600

General
Former Netherlands high sea tug. Built in 1943. Purchased by the French Navy in Jan. 1964 to be used at the Experimental Base in the Pacific. Admitted to active service on 5 Mar. 1964.

BELIER
Displacement: 900 tons standard (1,185 and 1,115 tons full load, respectively)
Machinery: I.H.P.: 2,000=12 kts.
Oil fuel: 180 tons
Radius: 3,000 miles

Photographs
A photograph of *Pachyderme* appears in the 1957-58 edition.

BUFFLE
Displacement: 900 tons standard (1,180 tons full load)
Dimensions: 167½×33×10 feet
Machinery: 2 sets triple expansion. I.H.P.: 2,000=12 kts.
Complement: 32

Construction
Launched on 4 May 1939.

ACHARNE
Displacement: 500 to 682 tons (full load)
Dimensions: 114½×27½×10 feet
Machinery: Triple expansion. I.H.P.: 1,000=10 to 11 kts.

General
All laid down 1937-38. *Archarné* by Brest, others by F. & C. de la Gironde, Bordeaux. *Actif*, *Applique* and *Cépét* were scrapped in 1957-58. *Contentin* was withdrawn from service in 1960. *Champion* was condemned in 1961, *Obstiné* in 1965.

INFATIGABLE (ex-Polangen)
Displacement: 540 tons
Machinery: I.H.P.: 1,200=11 kts.

IMPLACABLE (ex-Fohn II)
Displacement: 620 tons
Machinery: I.H.P.: 1,600=11 kts.

Disposals
Intraitable (ex-Nordergrunde) was condemned in Mar. 1961, and *Mammoth* in July 1963. *Imbattable* (ex-Nesserland) was officially deleted in 1965.

ELEPHANT (ex-Bar)
Displacement: 850 tons (1,180 tons full load)
Machinery: I.H.P.: 1,800=12 kts.

Disposal
The tug *Samson* (ex-German *Suder Hever*) was officially condemned Mar. 1961.

EFFICACE
Displacement: 500 tons
Machinery: I.H.P.: 1,000=9 kts.

RHINOCEROS
Displacement: 700 tons
Machinery: Diesels. B.H.P.: 1,850=12 kts.

Photographs
A photograph of *Rhinocéros* appears in the 1953-54 to 1957-58 editions. Another tug of this type was purchased in 1964, it is officially stated.

MALABAR (ex-YTB 458, ex-Evea)
Displacement: 300 tons
Machinery: Diesel. B.H.P.: 1,020=14 kts.

General
Transferred from the U.S. Navy in 1944. Sister *Coolla* was deleted in 1965.

TENACE (ex-ATA 226)
Displacement: 400 tons
Machinery: Diesels. B.H.P.: 1,200=10 kts.

Disposals
Locminé was condemned in 1964, it is officially stated.
Harbour Tugs
Acalou, *Balsa*, *Bouleau*, *Charme*, *Chene*, *Cormier*, *Equedreville*, *Frene*, *Hetre*, *Hevea*, *Latanier*, *Meleze*, *Merisier*, *Okoule*, *Peuplier*, *Pin*, *Platan*, *Saule*, *Sycomore*.

GERMANY

Bundesmarine Administration

Chief of Naval Staff, Federal German Navy:
Vice-Admiral Karl Adolf Zenker
Commander-in-Chief of the Fleet:
Vice-Admiral Heinrich Gerlach

Naval Attaché in London:
Captain G. Kray
Naval Attaché in Washington:
Captain Helmuth Schmoeckel

Future Naval Programme

Strength to be increased from 235 ships and 31,000 personnel in 1964 to 280 ships and 43,000 personnel by 1970.

New construction guided missile ships planned include:
8 destroyers of 4,000 tons,
10 corvettes of 2,000 tons,
10 fast patrol boats of 150 tons.

Personnel

1961: 23,100 (2,100 officers, 21,000 men)
1962: 29,000 (2,636 officers, 26,364 men)
1963: 30,000 (2,800 officers, 27,200 men)
1964: 31,000 (3,000 officers, 28,000 men)
1965: 33,000 (3,000 officers, 30,000 men)

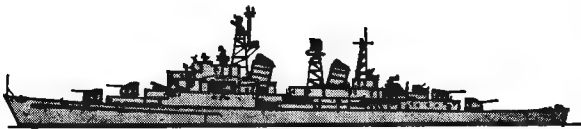
Mercantile Marine

Lloyd's Register of Shipping:
2,504 vessels of 5,159,186 tons gross

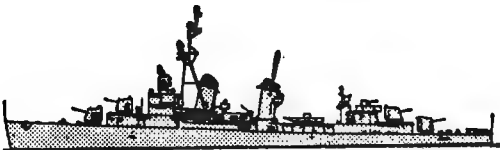
Scale: 150 feet=1 inch



DEUTSCHLAND



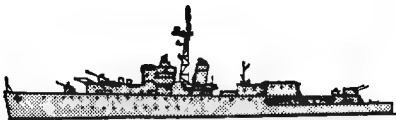
HAMBURG Class



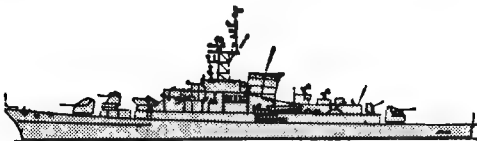
FLETCHER Class



SCHEER



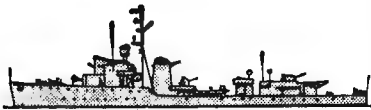
GRAF SPEE



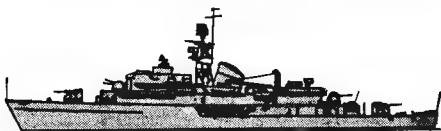
KÖLN Class



HIPPER



BROMMY, RAULE



RHEIN Class



SCHARNHORST



GNEISENAU

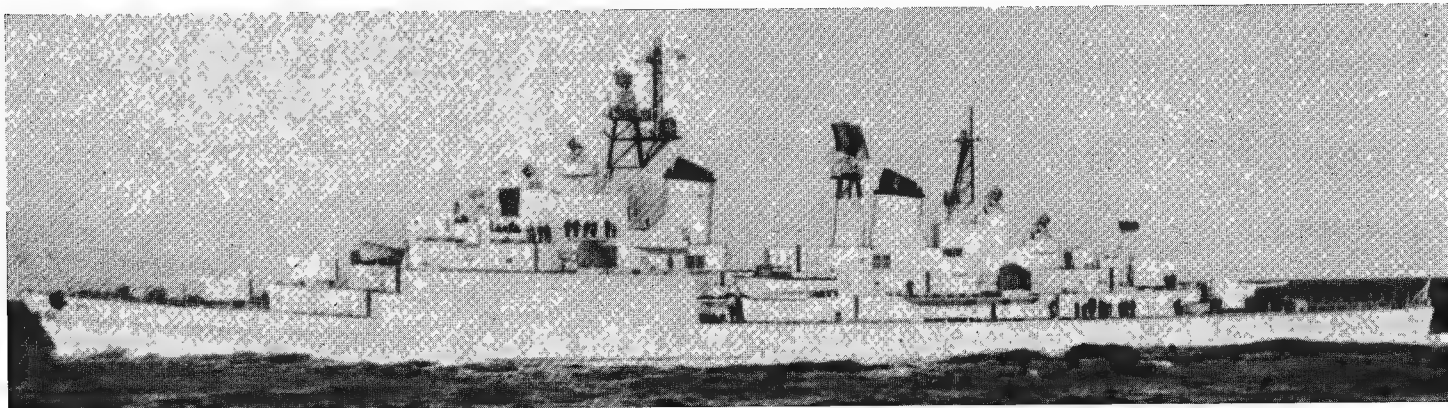
DESTROYERS

New Construction
Guided Missile Armed Type
"Charles F. Adams" Class

Displacement: 4,000 tons normal 4,500 tons full load
Dimensions: 431 (w.l.), 440 (o.a.)×47×15 (mean), 20 (max.) feet

Guided weapons: "Tartar" surface-to-air missile launcher
Guns: 2—5 inch, 54 cal. d.p. single mount, rapid fire
A/S weapons: ASROC rocket launcher, 2 triple torpedo launchers, 1 D.C.T.
Aircraft: Provision for helicopter
Machinery: Geared steam turbines, 2 shafts. S.H.P.: 70,000=35 kts.
Boilers: 4
Complement: 350

General
In 1964 it was decided that three guided missile armed destroyers of the "Charles F. Adams" class will be built in United States shipyards and another five in West German shipyards.
In 1965 the contract for the construction of the first three guided missile armed destroyers, assigned the United States Navy numbers DDG 28, DDG 29 and DDG 30, was awarded to the Bath Iron Works Corporation, Bath, Maine. They are expected to be delivered in 1968-69. Cost \$43,754,000.



HAMBURG

1964, courtesy Erich Gröner

4 "Hamburg" Class

Displacement: 3,340 tons standard (4,330 tons full load)
Dimensions: 439½×44×14½ feet
Guns: 4—3.9 inch, d.p. (100 mm.); 8 —40 mm. AA. (4 twin)
Tubes: 5—21 inch (3 bow, 2 stern), and 2 for ASW torpedoes
A/S weapons: 2 Bofors four-barrelled depth charge mortars (rocket launchers)
Machinery: Geared steam turbines, 2 shafts. S.H.P.: 68,000=35 kts.
Complement: 288

Name	Pennant No.	Builders	Laid down	Launched	Completed
BAYERN	D 183	H. C. Stulcken Sohn, Hamburg	1962	14 Aug. 1962	1965
HAMBURG	D 181	H. C. Stulcken Sohn, Hamburg	1959	26 Mar. 1960	23 Mar. 1964
HESSEN	D 184	H. C. Stulcken Sohn, Hamburg	1962	4 May 1963	1966
SCHLESWIG-HOLSTEIN	D 182	H. C. Stulcken Sohn, Hamburg	1959	20 Aug. 1960	1964

General
Are named after countries of the German Federal Republic. Completion was retarded in order that recent

technical developments could be incorporated in the design. Bayern and Hessen are slightly different from Hamburg and Schleswig-Holstein.

6 Ex-U.S. "Fletcher" Class

Displacement: 2,100 tons standard (2,750 tons full load)
 Dimensions: 376½ (o.a.) × 39½ × 12½ (mean), 18 (max.) feet
 Guns: 4—5 inch, 38 cal. d.p.; 6—3 inch, 50 cal. AA. (3 twin mountings)
 Tubes: 5—21 inch (quintuple bank). Z 1 is fitted with racks for homing torpedoes
 A/S weapons: 2 hedgehogs, 1 depth charge rack
 Machinery: 2 sets General Electric geared turbines, 2 shafts. S.H.P.: 60,000 = 35 kts. Sea speed: 30 kts.
 Boilers: 4 Babcock & Wilcox
 Oil fuel: 650 tons
 Radius: 6,000 miles at 15 kts.
 Complement: 280

General
 Former American "Fletcher" class destroyers. On loan

Name	Pennant No.
Z 1 (ex-U.S.S. Anthony, DD 515)	D 170
Z 2 (ex-U.S.S. Ringgold, DD 500)	D 171
Z 3 (ex-U.S.S. Wadsworth, DD 516)	D 172
Z 4 (ex-U.S.S. Claxton, DD 571)	D 178
Z 5 (ex-U.S.S. Dyson, DD 572)	D 179
Z 6 (ex-U.S.S. Charles Ausburn, DD 570)	D 180



ZERSTÖRER 5

1963, courtesy Godfrey H. Walker, Esq.

from the United States for five years. Anthony, now Z 1 (NATO Pennant No. D 170) arrived at Bremerhaven on 14 Apr. 1958. Ringgold was transferred by the U.S.A. at Charleston, S.C., on 14 July 1959.

Builders	Laid down	Launched	Completed	German commissioned
Bath Iron Works Corporation, Maine	17 Aug. 1942	20 Dec. 1942	26 Feb. 1943	17 Jan. 1958
Federal S.B. & D.D. Co., Port Newark	25 June 1942	11 Nov. 1942	24 Dec. 1942	14 July 1959
Bath Iron Works Corporation, Maine	18 Aug. 1942	10 Jan. 1943	16 Mar. 1943	6 Oct. 1959
Consolidated Steel Corporation, Orange	25 June 1941	1 Apr. 1942	8 Dec. 1942	15 Dec. 1959
Consolidated Steel Corporation, Orange	25 June 1941	15 Apr. 1942	30 Dec. 1942	23 Feb. 1960
Consolidated Steel Corporation, Orange	14 May 1941	16 Mar. 1942	24 Nov. 1942	12 Apr. 1960

FAST FRIGATES

6 "Köln" Class

Name	Pennant No.	Launched	Completed
AUGSBURG	F 222	15 Aug. 59	7 Apr. 62
BRAUNSCHWEIG	F 225	3 Feb. 62	
EMDEN	F 221	21 Mar. 59	24 Oct. 61
KARLSRUHE	F 223	24 Oct. 59	15 Dec. 62
KÖLN	F 220	6 Dec. 58	15 Apr. 61
LUBECK	F 224	23 July 60	6 July 63

Displacement: 2,100 tons standard (2,550 tons full load)
 Dimensions: 344½ (pp.), 357½ (o.a.) × 34½ × 12 feet
 Guns: 2—3.9 inch (100 mm.), 6—40 mm. AA. (two twin, two single)
 Tubes: 2 for ASW torpedoes
 A/S weapons: 2 Bofors four-barrelled depth charge mortars (rocket launchers)
 Machinery: Combined diesel and gas turbine plant, 4—16 cyl. MAN diesels. B.H.P.: 12,000 coupled to 2 Brown Boveri gas turbines. B.H.P.: 26,000. 2 shafts. Total S.H.P.: 38,000=32 kts.
 Complement: 210

General
 A new type of fast anti-submarine frigates or escort destroyers. Built by H. C. Stülcken Sohn, Hamburg. Ordered in Mar. 1957. First ship completed in 1960. Remainder delivered by 1961-63. All ships of this class are named after towns of West Germany. Classed as Geleitboote.

Engineering
 Each of the two shafts is driven by two diesels coupled and geared to one BBC gas turbine. Variable pitch propellers.

Photographs
 A photograph of Köln appears in the 1960-61 edition.



AUGSBURG

1965, Bundesmarine, Official



KÖLN

1962, Bundesmarine, Official

FRIGATES (ex-Escort Destroyers)

2 British "Hunt" Class, Type III

BROMMY (ex-H.M.S. Eggesford)
 RAULE (ex-H.M.S. Albrighton)

Name:	Brommy	Raule
Pennant No.:	F 218	F 217
Builders:	J. Samuel White & Co. Ltd., Cowes	John Brown & Co. Ltd., Clydebank
Laid down:	23 June 1941	30 Dec. 1940
Launched:	12 Sep. 1942	11 Oct. 1941
Completed:	21 Jan. 1943	22 Feb. 1942

Displacement: 1,087 tons standard (1,620 tons full load)
 Dimensions: 264½ (pp.), 280 (o.a.) × 31½ × 14 (max.) feet
 Guns: 1—40 mm. AA.
 A/S weapons: 2 ASW torpedo launchers; 2 four-barrelled depth charge mortars
 Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 19,000=25.5 kts.
 Boilers: 2 Admiralty three-drum type
 Oil fuel: 345 tons
 Radius: 3,600 miles at 14 kts.
 Complement: 80 (170 max.)



RAULE

1963, Bundesmarine, Official

General
 Former British frigates (ex-escort destroyers) of the "Albrighton" class ("Hunt" class, Type III). Reconstructed in 1958-59 and transferred from Great Britain to the Bundesmarine, commissioning on 14 May 1959. Rated as training ships for the submarine weapons school. Both modified in 1961. Brommy was annually

refitted by Palmers Hebburn works of Vickers-Armstrongs in 1962, 1963, and 1964. Raule was modified by Howaldtswerke, Hamburg, 1962-64.
Photographs
 A photograph of Brommy appears in the 1962-63 edition.

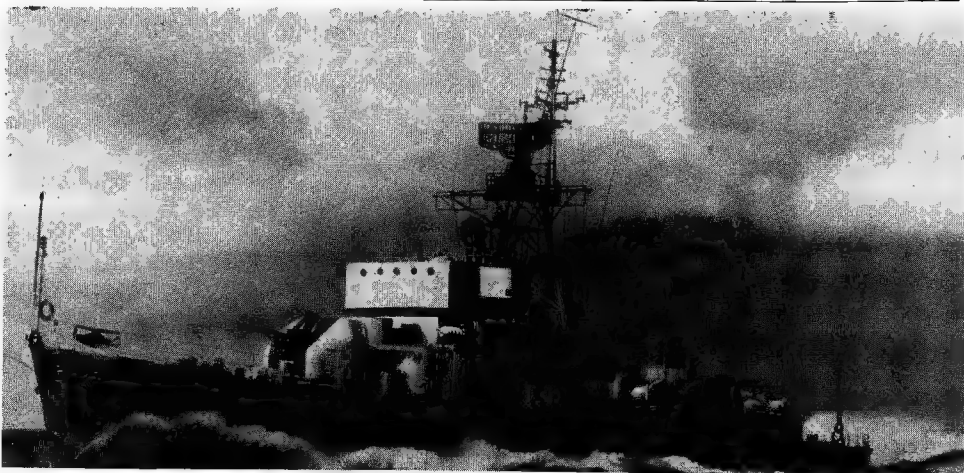
Frigates (ex-Escort Destroyers)-continued

I British "Hunt" Class, Type II

GNEISENAU (ex-H.M.S. Oakley, ex-Tickham)

Pennant No.	F 212
Builders:	Yarrow & Co. Ltd., Scotstoun, Glasgow
Laid down:	19 Aug. 1940
Launched:	15 Jan. 1942
Completed:	7 May 1942
Displacement:	1,050 tons standard (1,160 tons full load)
Dimensions:	264½ (pp.), 280 (o.a.)×31½×14 (max.) feet
Guns:	1—3.9 inch AA.; 4—40 mm. AA.
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 19,000=25 kts.
Boilers:	2 Admiralty three-drum type
Oil fuel:	345 tons
Radius:	3,600 miles at 14 kts.
Complement:	82 (7 officers, 75 ratings) 130 max.

General
Former British frigate (ex-escort destroyer) of the "Blackney" class ("Hunt" class, Type II). Purchased in Nov. 1957. Officially taken over after refit in Great Britain, at Langton Branch Dock, Harland & Wolff Ltd., Liverpool, on 2 Oct. 1958. Commissioned and re-named at Bremerhaven on 18 Oct. 1958. Fitted with



GNEISENAU (after reconstruction)

1965, Stefan Terzibaschtsch

stabilisers, radar and cowl funnel. Employed as a training ship by the Gunnery School. Modified in 1961. Anti-submarine weapons removed. Underwent further reconstruction by Howaldtswerke, Hamburg, in 1962-64.

FRIGATES (ex-Sloops)

2 Ex-British "Black Swan" Class

SCHARNHORST (ex-H.M.S. Mermald)
SCHEER (ex-H.M.S. Hart)

Name:	Scharnhorst	Scheer
Pennant No.:	F 213	F 216
Builders:	Wm. Denny & Bros. Alex Stephen & Sons Ltd., Dumbarton	Ltd., Govan, Glasgow
Laid down:	8 Sep. 1942	27 Mar. 1942
Launched:	11 Nov. 1943	7 July 1943
Completed:	12 May 1944	12 Dec. 1943
Displacement:	1,490 tons standard (1,975 tons full load)	
Dimensions:	300×38½×11 (max.) feet	
Guns:	Scharnhorst: 2—3.9 inch AA., 4—40 mm. AA. Scheer: 4—40 mm. AA.	
A/S weapons:	1 D.C.T.; 1 D.C. rack; 40 D.C.	
Mines:	20 (Scharnhorst)	
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 4,300=18 kts.	
Boilers:	2 Admiralty three-drum type	
Oil fuel:	370 tons	
Radius:	4,500 miles at 12 kts.	
Complement:	76 (7 officers, 69 ratings) 190 max. Scharnhorst 125	

General
Former British frigates (ex-sloops) of the Modified "Black Swan" class.

Transfer

Scheer was handed over at Palmers, Jarrow, on 27 April 1959, and Scharnhorst was handed over at Vickers-Armstrongs, Tyne on 5 May 1959.

Training

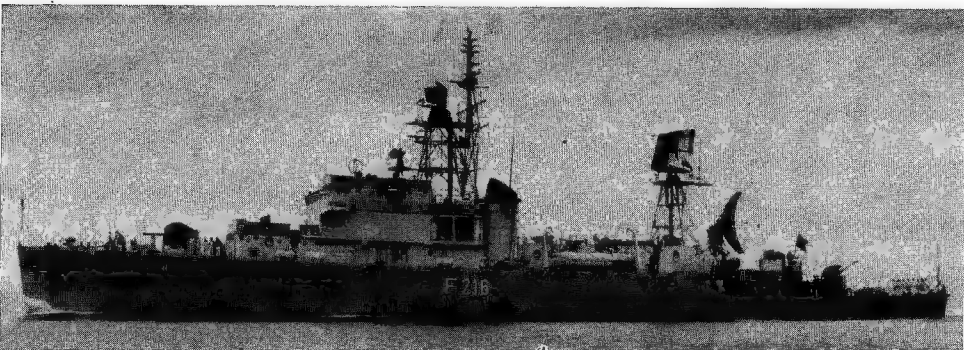
Scharnhorst is employed for gunnery training and Scheer for radar training.

Conversion

Scharnhorst was converted by Stülcken Sohn, Hamburg, from June 1961 to July 1962, with French type 100 mm. guns (her former armament was 6—4 inch AA., 2—40 mm. AA.). Scheer was converted by Seebeck from Sep. 1961 to Nov. 1962 into a radar picket training ship.

Disposals

Of this class Graf Spee (ex-H.M.S. Flamingo), F 215, and Hipper (ex-H.M.S. Actaeon), F 214, were officially stricken from the active list on 31 July 1964.



SCHEER

1964, courtesy Mr. Michael D. J. Lennon



SCHARNHORST

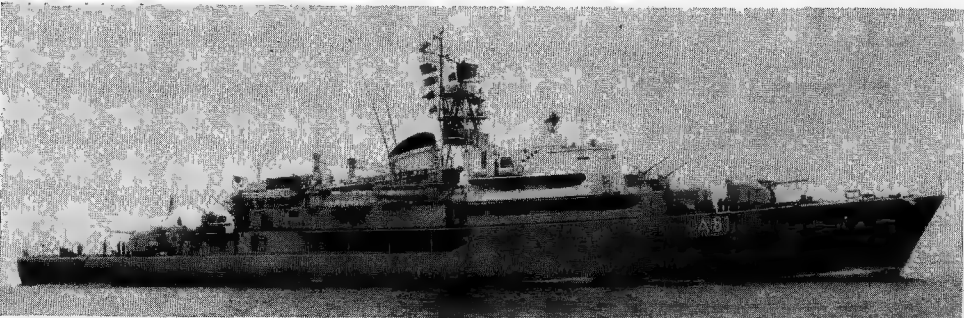
1964, Stefan Terzibaschtsch

ESCORT AND SUPPORT SHIPS

13 "Rhein" Class

DONAU ELBE ISAR	LAHN LECH MAIN	MOSEL NECKAR RHEIN RUHR	SAAR WERRA WESER
Displacement:	2,370 tons standard (2,540 tons full load)	Lahn and Lech 2,460 standard, 2,680 full	
Dimensions:	324½×38½×11½ feet		
Guns:	2—3.9 inch AA. (100 mm.). 4—40 mm. AA. (Lahn and Lech no 3.9)		
Machinery:	6 Maybach or Daimler diesels, 2 shafts. Diesel-electric in Isar, Lahn, Lech, Mosel, Saar. B.H.P.: 11,400=22 kts.		
Complement:	110 (extra accommodation for 200		

General
Elbe, Mosel, Rhein and Ruhr were built by Schliekerwerft, Hamburg. Isar by Blohm & Joss, Hamburg. Weser by Elsflether Werft, Neckar by Lürssen, Bremen-Vegesack, Saar by Norderwerft, Hamburg, Donau by Schlichting, Travemünde, Lahn and Lech by Flender, Lübeck, Main, Werra by Lindenau, Kiel-Friedrichsort. All com-



ELBE

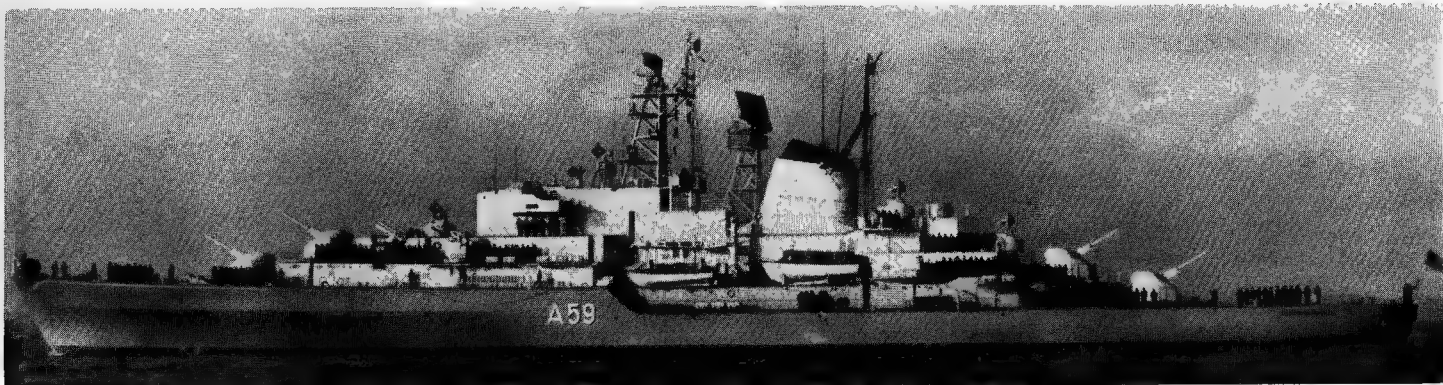
1964, Wright & Logan

pleted in 1961-64. Rated as Begleitschiffe (tenders) for minesweepers (Isar, Mosel, Saar), submarines (Lahn, Lech), training (Donau, Ruhr, Weser), and motor torpedo boats (others) but these handsome and symmetrical ships of very interesting design, with their 3.9 inch

guns and comparatively high speed could obviously be used in lieu of frigates.

Photographs
A photograph of Rhein appears in the 1962-63 edition, and of Weser in the 1963-64 edition.

TRAINING SHIP



DEUTSCHLAND

I Light Cruiser Type

DEUTSCHLAND

Pennant No. A 59
Builders: Nobiskrug, Rendsburg
Laid down: 1959
Launched: 5 Nov. 1960
Completed: 25 May 1963

Displacement: 4,800 tons normal (5,500 tons full load)

Dimensions: 452½ (pp.), 475½ (o.a.) × 59 × 14½ feet
Guns: 4—3.9 inch (100 mm.) (single), 6—40 mm. AA. (2 twin, 2 single)
Tubes: 4 for ASW torpedoes, 2 for anti-surface torpedoes
A/S weapons: 2 Bofors four-barrelled depth charge mortars, rocket launchers
Aircraft: 1 helicopter
Machinery: 2 Mercedes-Benz and 2 Maybach diesel motors. B.H.P.: 6,680, and

1964, courtesy Mr. Michael D. J. Lennon

Complement: geared turbines. S.H.P.: 8,000 3 shafts. Speed=22 kts. 550 (283 ship's company, plus 267 cadets)
General First West German naval ship to exceed the post-war limit of 3,000 tons. Large frigate or light cruiser type. Can also be employed as a minelayer. Designed with armament and machinery of different types for training purposes. The name originally planned for this ship was Berlin. Ordered in 1956. Carried out her first machinery sea trials on 15 Jan. 1963.

SUBMARINES

6 New Construction Hunter-Killer Type

U 25 U 26 U 27 U 28 U 29 U 30

Displacement: 1,000 tons
Tubes: For homing torpedoes
Machinery: Diesels. Electric motors
Complement: 60

General Construction of six oceangoing hunter-killer U-boats displacing up to 1,000 tons was authorised on 9 Oct. 1963 for delivery from German shipyards by 1967.

12+12 Coastal Type

U 13 U 15 U 17 U 19 U 21 U 23
U 14 U 16 U 18 U 20 U 22 U 24
New Construction
U 13-24 are reported to be of similar design to U 4-9.
U 1 (21 Oct. 1961) U 7 (30 May 1963)
U 2 (25 Jan. 1962) U 8 (11 Oct. 1963)
U 3 (7 May 1962) U 9
U 4 (22 Aug. 1962) U 10
U 5 (22 Nov. 1962) U 11
U 6 (22 Apr. 1963) U 12

Displacement: 450 tons
Dimensions: 144½ (o.a.) × 15½ feet
Tubes: 8 (bow)
Machinery: 2 diesels. B.H.P.: 1,200=11 kts. surface
2 electric motors. H.P.: 1,700 =17 kts. submerged
Complement: 21 officers and ratings

General All built by Kieler Howaldtswerke, Kiel in floating docks. Launch dates above. "Teardrop" hull. Fitted with schnorkel installation. First submarines designed and built by Germany since the end of the Second



U 6

1964, courtesy Erich Gröner

World War. Design Improvement U 4-12 were built to a heavier and improved design, U 1-3 modified accordingly. U 9-12 have hulls of different steel alloys of non-magnetic propensity. (See original appearance in the 1962-63 and 1963-64 editions). U 4-8 are sheathed with zinc.

Transfer U 3, lent to Norway on 10 July 1962 and temporarily named Kobben (Pennant No. S 310), was returned to Germany in 1964.
Cancellation The planned three units of the midget type did not materialize.

I Converted Type XXI

WILHELM BAUER (ex-U 2540) Pennant No. Y 880

Displacement: 1,620 tons surface (1,820 tons submerged)
Dimensions: 252½ × 21½ × 20½ feet
Tubes: 4—21 inch (bow)
Machinery: 2 diesels. B.H.P.: 1,200. Diesel electric drive.
2 electric motors. H.P.: 5,000=17.5 kts.

General German Second World War Type XXI. Launched in 1944 by Blohm and Voss, Hamburg. Sunk on 3 May, 1945. Raised in 1957. Rebuilt in 1958-59 at Howaldtswerke, Kiel, for commissioning on 1 Sep. 1960. Used



WILHELM BAUER

1963, Bundesmarine, Official

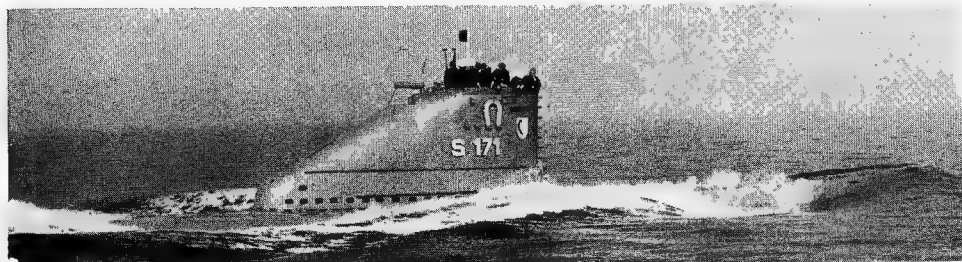
for experimental purposes on electronic equipment machinery and outfit in the Erprobungsstelle für Marine-waffen (Experimental Station for Naval Weapons). Conning tower has been modified.

2 Type XXIII

HAI (ex-UW 20, ex-U 2365) NATO Pennant No.: S 170
HECHT (ex-UW 21, ex-U 2367) NATO Pennant No.: S 171

Displacement: 180 tons standard, 232 tons surface (256 tons submerged)
Dimensions: 118 × 10 × 12 feet
Tubes: 2—21 inch (bow)
Machinery: 1 MWM diesel, 1 shaft. B.H.P.: 580=9.7 kts. surface
1 Electric motor. H.P.: 600=12.5 kts. submerged
1 Electric motor.
H.P.: 35=2 kts. submerged
Oil fuel: 18 tons
Radius: 1,350 miles at 9 kts.
Complement: 16

General German war type XXIII. Built in 1945 at Deutsche Werft, Hamburg. Raised in the Western Baltic in 1956, rebuilt at Howaldtswerke, Kiel in 1957. Used for ASW



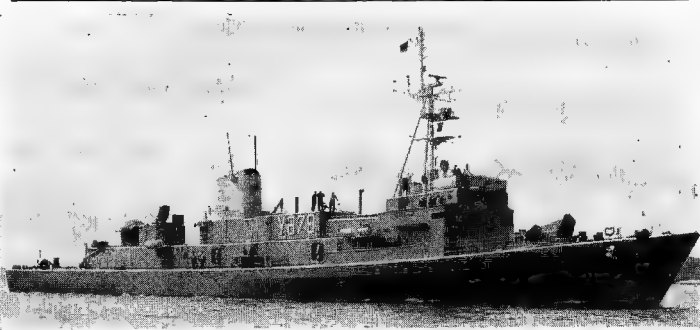
HECHT

1963, Bundesmarine, Official

training and submarine crew training. Hai (Shark) was commissioned on 15 Aug. 1957. Hecht (Pike) was commissioned on 1 Oct. 1957. Both in service in 1958. A photograph of Hai appears in the 1962-63 edition.

Reconstruction On 19 Oct. 1962 both boats commenced their third reconstruction, being lengthened by about 2 m. They recommissioned on 1 Aug. 1963.

CORVETTES



HANS BURKNER 1964, Bundesmarine, Official

I PCE Type

HANS BURKNER

Displacement: 982 tons standard (1,100 tons full load)
Dimensions: 265½ (o.a.)×30½×10 feet
Guns: 2—40 mm. AA. (twin mounting)
Tubes: 2—18 inch anti-submarine homing
A/S weapons: 1 D.C. mortar (four-barrelled) 2 D.C. racks
Machinery: 4 MAN diesels, 2 shafts. S.H.P.: 13,600=25 kts.
Complement: 50

General

Large PCE type. Rated as Type B *Torpedofangboote*. Built by Atlaswerke, Bremen. Launched on 16 July 1961. Completed on 18 May 1963. Named after the designer of the German pre-First World War battleships. Pennant No. Y 879.



NAJADE 1965, Dr. Giorgio Arra

5 "Thetis" Class

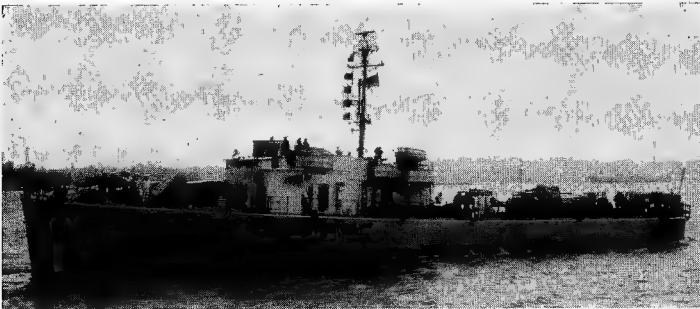
HERMES	NAJADE	THESEUS	THETIS	TRITON
Displacement:	564 tons standard (680 tons full load)			
Dimensions:	229½×27×7½ feet			
Guns:	2—40 mm. AA. (twin mounting)			
A/S weapons:	Bofors D.C. mortar (<i>Hermes</i> 2 tubes)			
Machinery:	2 MAN diesels, 2 shafts. B.H.P.: 6,800=24 kts.			
Complement:	48			

General

Built by Roland Werft, Bremen-Hemelingen. Some have a computer house before the bridge structure. *Thetis* commissioned on 1 July 1961. *Hermes* on 16 Dec. 1961. *Najade* on 12 May 1962. *Triton* on 10 Nov. 1962, and *Theseus* on 15 Aug. 1963. Pennant Nos. P 6112, P 6113, P 6115, P 6111 and P 6114, respectively. These *Torpedofangboote* of an advanced PC type, an interesting new design presenting a pleasing and rakish appearance, would be used as submarine chasers in wartime. They are provided with a helicopter deck.

Photographs

A starboard quarter view of *Najade* appears in the 1963-64 and 1964-65 editions.



UW 12 1964, Erich Gröner

I U.S. PC Type

UW 12 (ex-PC 1618, ex-P 9)

Displacement: 325 tons standard (400 tons full load)
Dimensions: 170 (pp.)×23×6½ feet
Guns: 1—40 mm. Bofors AA.; 2—20 mm. AA.
A/S weapons: 1 Hedgehog, 4 D.C.T., 2 D.C. racks
Machinery: 4 Pielstick-SEMT light and fast diesels coupled 2 by 2. B.H.P.: 3,240=18.7 kts.
Radius: 2,500 miles at 12 kts.; 2,000 miles at 15 kts.
Complement: 62

General

Built in France by Dubigeon, Nantes under a U.S.A. off-shore order. Completed in 1955. Purchased by Germany in 1957. Commissioned on 17 Apr. 1957. Submarine chaser of the U.S. PC type. Formerly employed for trial purposes at the submarine weapons school. Now in operational reserve. Pennant No.: W 51.

Disposals

The five corvettes (former M 35 type ocean minesweepers) rated as *Schulboote* (training ships) *Blene*, *Bremse*, *Brummer*, *Hummel* and *Wespe* (see former names and numbers and history in the 1963-64 editions) were decommissioned to reserve in Sep.-Oct. 1963 to be used as accommodation hulks.

COASTAL MINESWEEPERS



SCHLESWIG 1965, Erich Gröner

18 "Lindau" Class

CUXHAVEN M 1078	KONSTANZ M 1081	TÜBINGEN M 1074
DÜREN M 1079	LINDAU M 1072	ULM M 1083
FLensburg M 1084	MARBURG M 1080	VÖLKlingen M 1087
FULDA M 1086	MINDEN M 1085	WEILHEIM M 1077
GÖTTINGEN M 1070	PADERBORN M 1076	WETZLAR M 1075
KOBLENZ M 1071	SCHLESWIG M 1073	WOLFSBURG M 1082

Displacement: 370 tons standard (425 tons full load)
Dimensions: 137½ (pp.), 147½ (o.a.)×27½×8½ feet
Guns: 1—40 mm. AA.
Machinery: Maybach diesels, 2 shafts. B.H.P.: 4,000=16 kts.
Complement: 46

General

Lindau, first German-built vessel for the Federal German Navy since the Second World War, was launched on 16 Feb. 1957. Built by Yacht- & Bootswerft, Burmester, Bremen-Burg. Seventeen similar *Küstenminensuchboote* were built in German yards in 1958-60. The hull is of entirely wooden construction and laminated with plastic glue. The engines are built of non-magnetic materials. The first six, *Göttingen*, *Koblenz*, *Lindau*, *Schleswig*, *Tübingen* and *Wetzlar*, were modified with lower bridges in 1958-59. *Schleswig* was lengthened by 6½ feet in 1960, and all the others were similarly extended in 1960-64.



HAMELIN 1964, Wright & Logan

6 "Vege sack" Class

DETMOLD M 1252	PASSAU M 1255	VEGESACK M 1250
HAMELIN M 1251	SIEGEN M 1254	WORMS M 1253
Displacement:	362 tons standard (378 tons full load)	
Dimensions:	137½ (pp.), 144½ (o.a.)×26½×9 feet	
Guns:	2—20 mm. AA.	
Machinery:	2 Mercedes-Benz diesels, 2 shafts. B.H.P.: 1,500=15 kts. Kamewa variable pitch propellers	
Complement:	40	

General

Built in Cherbourg, under the "off-shore" programme. All launched in 1959-60. A photograph of *Vege sack* appears in the 1960-61 to 1963-64 editions. All placed in reserve in July 1963.

PATROL BOATS



ARIADNE 1964, Erich Gröner

10 "Niobe" Class

AMAZONE (27 Feb. 1963)	GAZELLE (14 Aug. 1963)	NIOBE (18 Aug. 1957)
ARIADNE (23 Apr. 1960)	HANSA (18 Nov. 1957)	NIXE (3 Dec. 1962)
FREYA (25 June 1960)	HERTHA (18 Feb. 1961)	NYMPHE (20 Nov. 1962)
		VINETA (17 Sep. 1960)

Displacement: Type A: 200 tons standard (230 tons full load)
Type B: 150 tons standard (180 tons full load)
Dimensions: Type A: 120 (o.a.)×21½×5½ feet
Type B: 108 (pp.), 113½ (o.a.)×21½×5½ feet
Guns: 1—40 mm. AA.
Machinery: 2 Mercedes-Benz diesels, 2 shafts. B.H.P.: 1,900=17 kts. (*Hansa*: 1 shaft. B.H.P.: 950=14 kts.)
Complement: 19

General

Launch dates above. Pennant Nos. W 29, 23, 24, 30, 26, 21, 28, 27, 25 respectively. All were built by Krögerwerft, Rendsburg. *Gazelle*, was completed on 9 Dec. 1963. Rated as *Küstenwachboote* (defence boats). *Hansa* and *Niobe* are Type A. The other eight ships are Type B. There are small differences. Some have mine-sweeping gear. All bear the names of former large or small cruisers, 1897-1900. Ten more Type B boats were ordered from Kröger, Rendsburg in 1963.

MOTOR TORPEDO BOATS



STRAHL 1963, courtesy Vosper Ltd., Portsmouth Builders

I Modified "Brave" Type

STRAHL P 6194

Displacement: 95 tons standard (100 tons full load)
 Dimensions: 96 (w.l.), 99 (o.a.) × 25 × 7 feet
 Guns: 2—40 mm. AA. (see Notes)
 Torpedoes: 4—21 inch in side launching chutes. (see Notes)
 Machinery: 3 Bristol Siddeley Marine Proteus gas turbines. 3 shafts. B.H.P.: 12,750=54 kts.
 Complement: 22 (3 officers, 3 petty officers, 16 ratings)

General

Built by Vosper Ltd., Portsmouth. Contract announced on 22 Aug. 1950. Launched on 10 Jan. 1962. Commissioned on 21 Nov. 1962. Of similar design to the "Brave" class fast patrol boats in the Royal Navy. Alternative armaments which can be mounted are: 4—21 inch torpedoes with 1—40 mm. AA. gun; or 2—21 inch torpedoes with 2—40 mm. AA. guns; or 8 ground mines with 1—40 mm. AA. gun. Allen reverse reduction gear boxes, and Rover gas turbine generating machinery. "Strahl" means Beam.



PFEIL 1964, Stefan Terzibaschitsch

I Modified "Ferocity" Type

PFEIL F 6193

Displacement: 75 tons standard (80 tons full load)
 Dimensions: 92 (w.l.), 95 (o.a.) × 23½ × 6½ feet
 Guns: 2—40 mm. AA. (see Notes)
 Torpedoes: 2 or 4—21 inch in side launching chutes (see Notes)
 Machinery: 2 Bristol Siddeley Proteus gas turbines. 2 shafts. B.H.P.: 8,500=50 kts.
 Complement: 14 (2 officers, 2 petty officers, 10 ratings)

General

Built by Vosper Ltd., Portsmouth. Contract announced on 22 Aug. 1960. Launched on 26 Oct. 1961. Commissioned on 27 June 1962. Based on the design of Ferocity, the Vosper private venture prototype. Alternative armaments which can be mounted are: 4—21 inch torpedoes with 1—40 mm. AA. gun; or 2—21 inch torpedoes with 2—40 mm. AA. guns; or 8 ground mines with 1—40 mm. AA. gun. Allen reverse reduction gear boxes and Rover gas turbine generating machinery. "Pfeil" means Arrow.



HUGIN 1962, courtesy Boat Services Ltd. A/S

2 "Nasty" Type

HUGIN P 6191

Displacement: 70 tons standard (75 tons full load)
 Dimensions: 75½ (pp.), 80½ (o.a.) × 24½ × 6½ feet
 Guns: 2—40 mm. Bofors AA. (Munin 1—40 mm. only)
 Tubes: 4—21 inch originally (Munin 2—21 inch)
 Machinery: 2 Napier Deltic turbo blown diesels. B.H.P.: 6,200=43 kts.
 Complement: 18 to 22

MUNIN P 6192

General

Ordered from Boat Services Ltd., A/S., Norway, in May 1959 and commissioned on 5 Nov. 1960. Armament now modified. Placed in Reserve in Jan. 1964.

Transfer

Hugin and Munin were lent to Turkey in Aug. 1964, and temporarily re-named Dogan and Marti.

Disposal

UW 10 (ex-FPB 5030, ex-S 130) and UW 11 (ex-FPB 5208), former motor torpedo boats rated as training vessels, were deleted from the list in 1964.

Motor Torpedo Boats—continued



GEPARD (modified type)

1964, Wright & Logan



WOLF

1964, Erich Gröner



HÄHER

1962, Erich Gröner

40 "Jaguar Class"

ALBATROS P 6069	GEFARD P 6098	KRANICH P 6083	PUMA P 6097
ALK P 6084	GREIF P 6071	LEOPARD P 6060	REIHER P 6089
BUSSARD P 6074	HABICHT P 6075	LÖWE P 6065	SEEDLER P 6068
DACHS P 6094	HÄHER P 6087	LUCHS P 6061	SPERBER P 6076
DOMMEL P 6091	HERMELIN P 6095	MARDER P 6067	STORCH P 6085
ELSTER P 6088	HYÄNE P 6099	NERZ P 6096	TIGER P 6063
FALKE P 6072	ILTIS P 6058	OZELOT P 6101	WEIHE 6082
FRETCHEN P 6100	JAGUAR P 6059	PANTHER P 6064	WIESEL P 6093
FUCHS P 6066	KONDOR P 6070	PELIKAN P 6086	WOLF P 6062
GEIER P 6073	KORMORAN P 6077	PINGUIN P 6090	ZOBEL P 6092

Displacement: 160 tons standard (190 tons full load)
 Dimensions: 138 × 22 × 5 feet
 Guns: 2—40 mm. AA. (single)
 Tubes: 4—21 inch
 Mines: (2 torpedo tubes can be removed for 4 mines)
 Machinery: Mercedes-Benz or Maybach 20 cyl. diesels. 4 shafts. B.H.P.: 12,000=42 kts.
 Complement: 33

General

32 boats were built by Fr. Lürssen, Bremen-Vegesack in 1957-62 and the remaining eight by Krögerwerft, Rendsburg in 1958-64. Of composite construction, with steel frames, mahogany diagonal carvel hulls, alloy bulkheads and superstructure. Kormoran commissioned on 9 Nov. 1959, Kranich on 19 Dec. 1959, Alk on 14 Jan. 1960, Storch on 12 Mar. 1960, Pelikan on 30 Mar. and Häher on 5 Apr. 1960. Dachs, Fretchen, Gepard, Hermelin, Hyäne, Nerz, Ozelot, Puma, Wiesel and Zobel are of improved "1960" type with a different bridge. The others are "1955" type. A photograph of Jaguar appears in the 1958-59 to 1961-62 editions.



EISMÖWE

5 "Silbermöwe" Class

1962, Erich Gröner

EISMÖWE (ex-S 1) P 6055	SILBERMÖWE (ex-Silver Gull) P 6052
RAUBMÖWE (ex-S 2) P 6056	STURMMÖWE (ex-Storm Gull) P 6053
	WILDSCHWAN (ex-Wild Swan) P 6054

Displacement: 110 tons standard (155 tons full load)
 Dimensions: 116 × 16½ × 6 feet
 Guns: 1—40 mm. AA., 4—20 mm. AA.
 Tubes: 2—21 inch
 Machinery: 3 Mercedes-Benz 20 cyl. diesels. B.H.P.: 7,500=38 kts (Seeschwalbe has Maybach diesels; last three B.H.P.: 9,000=40 kts.
 Radius: 600 miles
 Complement: 19

General

German S-boote type. Built by Lürssen, Vegesack, Silver Gull, Storm Gull and Wild Swan in 1952-55, and S1, S2 and S3 in 1955-56. First two commissioned 2 July 1956, third 23 Apr. 1957. Pennant Nos. above. Sister boat Seeschwalbe, P 6057 (ex-S 3), renamed UW 9 and rated as a training vessel in 1961, was taken out of service on 31 Jan. 1964 (still exists, but decommissioned). A photograph of Silbermöwe appears in the 1960-61 and 1961-62 editions.

INSHORE MINESWEEPERS



PEGASUS

1963, Wright & Logan

30 "Schütze" Class

ALGOL M 1062	JUPITER M 1065	PERSEUS M 1090	SPICA M 1059
ATAIR M 1067	KREBS M 1052	POLLUX M 1054	STEINBOCK M 1091
CAPELLA M 1098	MARS M 1058	PLUTO M 1092	STIER M 1061
CASTOR 1051	MIRA M 1050	REGULUS M 1088	URANUS M 1099
DENEK M 1089	NEPTUN M 1093	RIGEL M 1056	WAAGE M 1063
FISCHE M 1096	ORION M 1053	SCHÜTZE M 1064	WEGA M 1069
GEMMA M 1097	PEGASUS M 1256	SIRIUS M 1055	WIDDER M 1094
HERKULES M 1095		SKORPION M 1068	

Displacement: 200 tons standard (266 tons full load)
 Dimensions: 144½ (pp.), 154½ (o.a.) × 22½ × 7½ feet
 Guns: 1—40 mm. AA. (2—40 mm. AA. designed). Atair, Gemma, Pegasus have 2—40 mm. (See General notes) Maybach diesels. 2 shafts. Escher-Wyss propellers (see General notes.) B.H.P.: 3,600=24.5 kts.
 Machinery:
 Complement: 39

General

Algol, Capella, Castor, Fische, Gemma, Krebs, Mars, Mira, Orion, Pollux, Regulus, Rigel, Schütze, Sirius, Skorpion, Spica, Steinbock, Stier, Waage and Wega were built by Abeking & Rasmussen, Lemwerder, Deneb, Jupiter, Pluto, Uranus and Widder by Schürenstedt, Bardenfle., Atair, Herkules, Neptun, Pegasus and Perseus by Schlichting, Travemünde. The design is a German type of fast minesweeper, a development of the "R" boats of the Second World War. All the units of this class are named after stars. The first four boats originally had Voith Schneider propellers, but all now have Escher-Wyss propellers. Schütze commissioned on 14 Apr. 1959, Gemma on 10 May 1960. Stier carries no weapons, but has a decompression chamber, being security vessel for submarines. Pennant Nos. above. All completed by 1964.



MERKUR

1962, Rolf Meinecke

5 "R" Type

MERKUR (ex-R 134) OT 1 (ex-Jupiter, ex-R 146) UW 5 (ex-R 150)

Displacement: 150 tons
 Dimensions: 135 × 19 × 5½ feet
 Guns: 2—20 mm. AA. or 4—20 mm. AA.
 Machinery: Diesel. B.H.P.: 2,200=19 kts. 2 Voith-Schneider propellers

General

Transferred by U.S. Navy, being returned to Germany in 1956. Capella, Mars, Pollux, Sirius and Spica were stricken from the list on 20 Feb. 1959 to be accommodation hulks without engines. Jupiter was renamed OT 1 for asdic training duties, and R 150, renamed UW 5, as a training vessel for the submarine weapons school. Regulus (ex-R 137) was renamed AT 1 in 1962 for naval gunnery training, but was scrapped on 16 Jan. 1964, and Saturn (ex-R 147) was renamed TF 105 (Torpedofahrboot) in 1963, but was disposed of in 1964. Orion (ex-R 132) and Rigel (ex-R 135) were disposed of in 1961, and Castor (ex-R 138) in 1962. Merkur (ex-R 134), Pennant No. W 68 (ex-M 1066), is employed as security vessel for submarines.



ALDEBARAN

1964, Wright & Logan

ALDEBARAN (ex-R 131, ex-R 91) UW 4 (ex-R 149, ex-R 102)

Displacement: 125 tons
 Dimensions: 124 × 19 × 4½ feet
 Guns: 1—20 mm. AA.
 Machinery: 2 MAN diesels. B.H.P.: 1,840=20 kts.
 2 Voith-Schneider propellers

General

UW 4, a training vessel for the submarine weapons school, was transferred to the Erprobungsstelle für Marinewaffen in Jan. 1964. Atair (ex-R 145, ex-R 76) was taken out of commission in 1960. Algol (ex-R 148, ex-R 99), Deneb (ex-R 141, ex-R 127) and Pegasus (ex-R 143, ex-R 68) were disposed of in 1961, Skorpion, ex-R 139, ex-R 120) and Wega (ex-R 130, ex-R 67) in 1962, and Arkturus (ex-R 151, ex-R 128) on 31 May 1963.

Of the 140-ton "R" boats, OT 1 (ex-R 153, ex-R 407) was taken out of service on 20 Feb. 1959 and replaced by Jupiter, renamed OT 1, AT 1 (ex-R 152, ex-R 266) was decommissioned on 15 Feb. 1961, and AT 2 (ex-R 154, ex-R 406) and UW 6 (ex-R 155, ex-R 408) were disposed of in 1963.

COASTAL PATROL BOATS



TM 2

1962, Erich Gröner

FM 1 (ex-W 7, ex-Pierre Mené) UW 1 (ex-W 10, ex-Adrien Magnier)
 FM 2 (ex-W 8, ex-Malgré Tout) TM 1 (ex-UW 3, ex-W 12, ex-No. 186)
 TM 2 (ex-UW 2, ex-W 11, ex-Miss Andrée)

Displacement: 140 tons
 Dimensions: 118 × 22 × 11 feet
 Guns: 1—20 mm. AA.
 Machinery: 1 Fairbanks-Morse diesel. B.H.P.: 450=11 kts.
 Oil fuel: 23 tons
 Radius: 3,300 miles
 Complement: 18

General

Ex-Canadian built MMS 1 with high fo'c'sle. Were Belgian fishing vessels before being bought and rebuilt in Germany. Re-rated training vessels in 1957, FM boats for fernmeldeshule (telecommunications). UW 1 for underwater training and TM-boats for divers. FM 3, ex-W 9, was taken out of service on 3 Oct. 1959, and UW 2 was renamed TM 2. Pennant Nos.: W 54, 55, 44, 53 and 45 respectively. All differ in appearance. FM 1 and FM 2 were placed in reserve on 21 Aug. 1963.

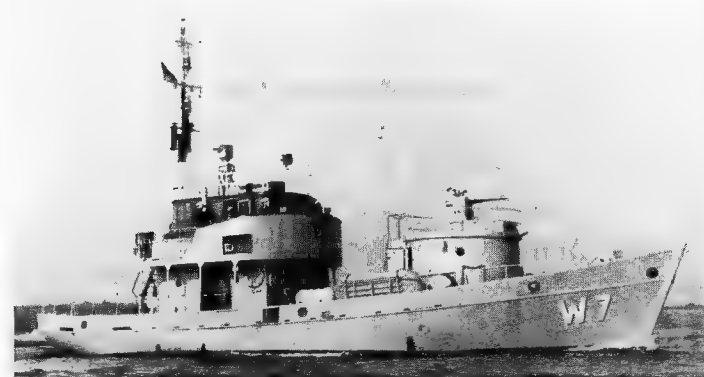


KW 17 1962, Erich Gröner
 KW 15 (ex-H 15) KW 17 (ex-H 17) KW 19 (ex-H 19)
 KW 16 (ex-H 16) KW 18 (ex-H 18) KW 20 (ex-H 20)

Displacement: 45 tons standard (60 tons full load)
 Dimensions: 83 (pp.), 93½ (o.a.) × 15½ × 4 feet
 Guns: 2—20 mm. AA. (KW 19, 4—20 mm. AA.)
 Machinery: 2 Mercedes-Benz diesels. 2 shafts. B.H.P.: 1,600=25 kts. (last three, B.H.P.: 2,000=over 25 kts.)
 Complement: 18

General

Formerly USN 54, 55, 56, 57, 58, 59, ex-Weser River Patrol boats. Launched in 1951-53. Pennant Nos.: W 15-20. Re-rated as Küstenwachboote in 1960. KW 19 was allocated to the Gunnery School as a training vessel. KW 15, KW 16, KW 17 and KW 20 were placed in reserve in 1963.



KW 7

1962, Rolf Meinecke

KW 1 (ex-H 1, ex-KFK 309) KW 6 (ex-H 6, ex-W 15)
 KW 2 (ex-H 2, ex-W 2, ex-KFK 613) KW 7 (ex-H 7, ex-W 16)
 KW 3 (ex-H 3, ex-W 3, ex-KFK 561) KW 8 (ex-H 8, ex-W 17)

Displacement: 112 tons
 Dimensions: 78½ × 22 × 9 feet
 Guns: 1—20 mm. AA.
 Machinery: 1 diesel motor. B.H.P.: 150=9 kts.
 Radius: 1,200 miles
 Complement: 16

General

KFK (Kriegsfischkutter) type picket boats (wachtboote). Launched in 1943. Rebuilt in 1951-52. Rated as Hafenschutzboote (harbour defence boats) until 1960 when they were re-rated as Küstenwachboote. Pennant Nos.: W 1, 2, 3, 6, 7, 8, respectively.

Transfer

KW 4, KW 5, KW 9 and KW 10 were given to Tanzania in 1965.

3 Ex-R.A.F. Type

FL 9 (ex-R.A.F. 2763) FL 10 (ex-R.A.F. 2765) FL 11 (ex-R.A.F. 2766)
 Displacement: 70 tons
 Dimensions: 95½ × 16½ × 4½ feet
 Machinery: Maybach diesels. 2 shafts. B.H.P.: 3,200=30 kts.
 Radius: 600 miles at 20 kts.

General

Built by Kröger, Rendsburg. Former Flugsicherungsboote of the R.A.F. station List/ Sylt. Commissioned on 1 Sep. 1961. Pennant Nos.: Y 861, Y 862 and Y 863.

MINELAYERS



BOTTROP

1964, Erich Gröner

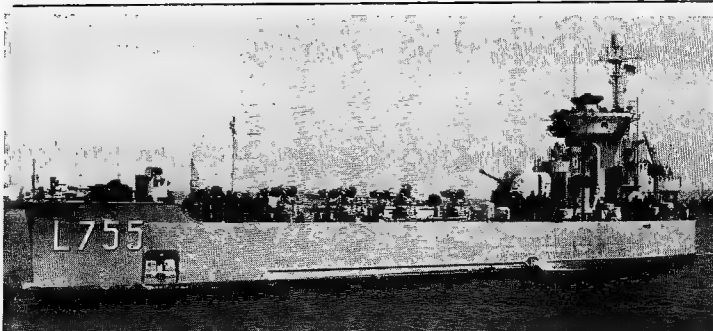
3 Ex-U.S. LST Type

BAMBERG (ex-U.S.S. Greer County, LST 799) N 122 (ex-A 1403)
BOCHUM (ex-U.S.S. Rice County, LST 1089) N 120 (ex-A 1404)
BOTTROP (ex-U.S.S. Saline County, LST 1101) N 121 (ex-A 1405)

Displacement: 1,653 tons standard (4,080 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.) \times 50 \times 14 feet
 Guns: 10—40 mm. (3 twin, 2 single)
 Machinery: 2 G.M. diesels. 2 shafts. B.H.P.: 1,700=11 kts.
 Oil fuel: 600 tons
 Radius: 15,000 miles at 9 kts.

General
 Former United States tank landing ships of the 511-1152 series transferred in 1961. All converted into minelayers. Commissioned on 6 Feb. 1964. A photograph of Bamberg (as LST A 1404) appears in the 1962-63 and 1963-64 editions.

MEDIUM LANDING SHIPS (ROCKET)



NATTER

1960, Bundesmarine, Official

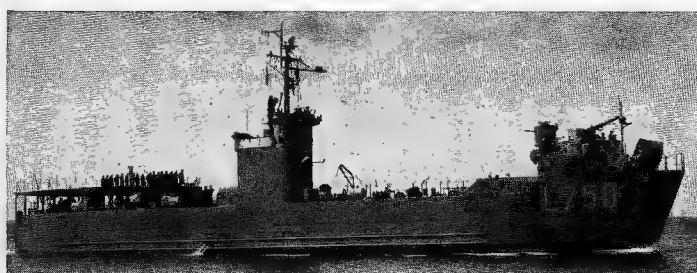
2 Ex-U.S. LSMR Type

NATTER (ex-Thames River, LSM(R) 534) **OTTER** (ex-Smyrna River, LSM(R) 532)

Displacement: 994 tons (attack), (1,084 tons full load)
 Dimensions: 204½ (w.l.), 206½ (o.a.) \times 34½ \times 7½ feet
 Guns: 1—5 inch, 4—40 mm. AA. (twin), 8—5 inch rocket projectors
 Machinery: G.M. diesels. 2 shafts. B.H.P.: 2,800=12.6 kts.
 Oil fuel: 60 tons
 Radius: 2,500 miles at 12 kts.
 Complement: 100

General
 Former United States Medium Landing Ships (Rocket). Rated as Landungsunterstützungsboote (see Notes below). Pennant Nos. L 755 and L 754 respectively.

MEDIUM LANDING SHIPS



KROKODIL (helicopter landing deck aft)

1962, Wright & Logan

4 Ex-U.S. LSM Type

EIDECHSE L 751 (ex-U.S.S. LSM 491) **SALAMANDER** L 752 (ex-U.S.S. LSM 553)
KROKODIL L 750 (ex-U.S.S. LSM 537) **VIPER** L 753 (ex-U.S.S. LSM 558)

Displacement: 743 tons beaching (1,095 tons full load)
 Dimensions: 196½ (w.l.), 203½ (o.a.) \times 34½ \times 8½ feet
 Guns: 2—40 mm. AA. (twin)
 Machinery: G. M. diesels. 2 shafts. B.H.P.: 2,800=12.5 kts.
 Oil fuel: 60 tons
 Radius: 2,500 miles at 12 kts.
 Complement: 50

General
 Rated as Landungsboote. All the above six landing ships (two LSM(R) and four LSM types) were purchased from the United States for about \$6,000,000 and transferred to Germany on 5 Sep. 1958 at Charleston, S.C. Refitted in 1959. They constitute the German Landungsgeschwader No. 2. A large port quarter oblique aerial view of Viper appear in the 1960-61 edition (Page 434, Addenda), and a starboard bow surface view of Salamander in the 1960-61 and 1961-62 editions. Krokodil has a landing deck for helicopters aft, and all the squadron could be so fitted.

LANDING CRAFT



LCU 1

1963, Bundesmarine, Official

1 Ex-U.S. LCU, ex-LCT (6) Type

LCU 1 (ex-U.S.S. LCU 779, ex-LCT (6) 779)

Displacement: 160 tons light (320 tons full load)
 Dimensions: 105 (pp.), 119 (o.a.) \times 32½ \times 5 (max.) feet
 Machinery: Diesels. 3 shafts. B.H.P.: 675=10 kts.

General
 Former American utility landing craft of the LCT (6) type transferred from the U.S.A. under the Military Aid Program.

New Construction
 In Dec. 1961 four landing craft were ordered from Schlickerwerft, Hamburg, and delivery was planned for 1962, but the firm is reported to have relinquished the contracts which are said to have been taken over by Blohm & Voss.

REPAIR SHIPS

2 Ex-U.S. ARB, ex-LST Type

Ex-U.S.S. **DIOMEDES**, ARB 11 (ex-LST 1119)
 Ex-U.S.S. **ULYSSES**, ARB 9 (ex-LST 967)

Displacement: 1,625 tons light (4,100 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.) \times 50 \times 11 feet
 Guns: 8—40 mm. AA.
 Machinery: 2 G.M. diesels. 2 shafts. B.H.P.: 1,800=11.6 kts.
 Oil fuel: 600 tons
 Radius: 15,000 miles at 9 kts.

General
 Transferred under MAP in June 1961. General particulars as Tank Landing Ships

2 Ex-U.S. LST Type

Ex-U.S.S. **MILLARD COUNTY**, LST 987
 Ex-U.S.S. **MONTGOMERY COUNTY**, LST 1041

Displacement: 1,650 tons standard (4,080 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.) \times 50 \times 14 feet
 Machinery: 2 G.M. diesels. 2 shafts. B.H.P.: 1,700=11 kts.
 Oil fuel: 600 tons
 Radius: 15,000 miles at 9 kts.

General
 Purchased in 1960 for conversion into repair ships similar to the U.S. ARB type.

WIELAND

Displacement: 130 tons
 Dimensions: 121½ \times 19½ \times 5 feet

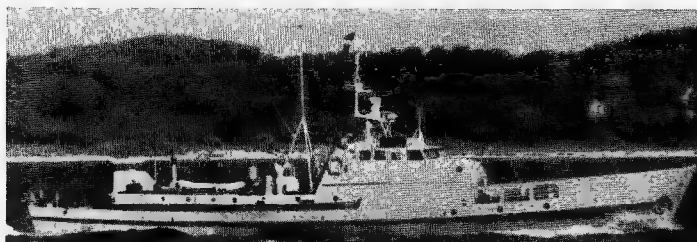
General
 Repair ship of the former German Navy. Commissioned on 10 Aug. 1956. Rated as schimmwerkstattschiff (floating workshop). Pennant No.: Y 804.

MEMMERT (ex-U.S.N. 106, ex-India, ex-BP 34)

Measurement: 270 tons gross
 Dimensions: 100 (pp.), 108½ (o.a.) \times 31 \times 5½ feet
 Machinery: 2 diesels. 2 shafts.

General
 Salvage vessel with a derrick. Built in 1940 at Walsum (Rhine river). Rated as Torpedoklarmachschiff (torpedo repair ship). Penant No.: Y 805. Crew of five.

RESCUE LAUNCHES



FL 5

1962, Erich Gröner

4 "KW" Type

FL 5 (ex-H 11, ex-P 1)
 FL 6 (ex-H 12, ex-P 2)

FL 7 (ex-H 13, ex-P 3)
 FL 8 (ex-H 14, ex-P 4)

Displacement: 45 tons standard (60 tons full load)
 Dimensions: 83 (pp.), 93½ (o.a.) \times 15½ \times 4 feet
 Machinery: 2 Mercedes-Benz diesels. B.H.P.: 2,000=25 kts.
 Complement: 14

General
 Built 1951-52. All are similar to U.S. Coast Guard 93-ft. type. Formerly rated as harbour defence vessels, but re-rated as Flugsicherungsboote (employed as air/sea rescue launches) in 1959. Pennant Nos.: Y 857-860 (ex-W 11-14). Guns removed.

Recent Disposals
 FL 1 (ex-FL 51, ex-MSM 2) was disposed of in 1962. FL 4 (ex-Falke, ex-FL 4), a smaller type of aircraft rescue boat, was also disposed of in 1962.
 FL 2 (ex-FL 52, ex-MSM 3) and FL 3 (ex-FL 50, ex-MSM 1), ex-German Air Force sea rescue launches, were disposed of on 2 Aug and 1 Aug. 1963, respectively.

DEPOT SHIPS AND TENDERS



EIDER

1962, Rolf Meinecke

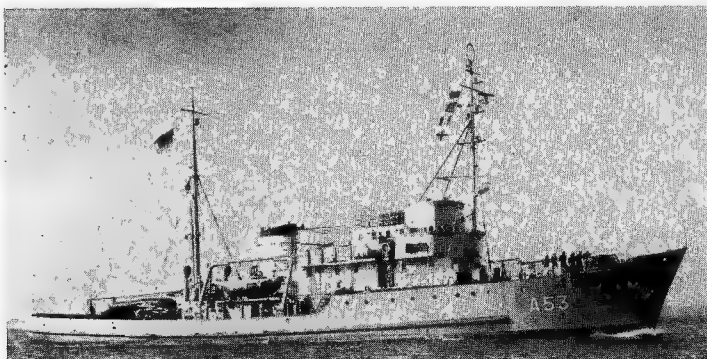
EIDER (ex-Catherine, ex-Dochet)

TRAVE (ex-Caroline, ex-Flint)

Displacement: 480 tons standard (750 tons full load)
 Dimensions: 164 (pp.), 177½ (o.a.) × 27½ × 14 feet
 Guns: 1—40 mm. AA., 1—20 mm. AA.
 Machinery: Eider: Triple expansion, 1 shaft, I.H.P.: 750=12 kts.
 Trave: Mercedes-Benz diesels, 1 shaft, B.H.P.: 900=12 kts.
 Fuel: Trave: 153 tons, Eider: 130 tons
 Complement: 45

General

Former British "Isles" type minesweepers (trawlers). Built in Canada. Trave converted from steam (triple expansion) to diesel-electric propulsion. Photograph of Trave in the 1957-58 to 1959-60 editions. Eider is employed as a mine clearance vessel. Pennant Nos. A 50 and A 51, respectively.



EMS

1963, Wright & Logan

EMS (ex-U.S.N. 104, ex-Harle). Pennant No. A 53

Measurement: 660 tons gross
 Dimensions: 185½ (o.a.) × 29 × 15½ feet
 Guns: 4—20 mm.
 Machinery: Sulzer diesels, B.H.P.: 1,000=12 kts.

General

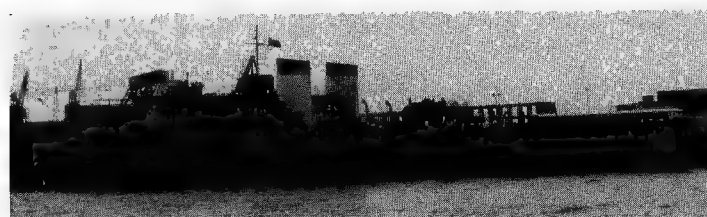
Built in 1941 by Kremer & Sohn, Elmshorn. Commissioned on 11 Dec. 1956.

OSTE (ex-U.S.N. 101, Puddefjord). Pennant No.: A 52.

Measurement: 567 tons gross
 Dimensions: 160 × 29½ × 17 feet
 Guns: 2—20 mm. AA.
 Machinery: 2 Sulzer diesels, 1 shaft, B.H.P.: 1,400=14 kts.

General

Built in 1943 at Akers Mekaniske Vaerkstad, Oslo. Taken over from the U.S. Navy.



WS 1

1965, Stefan Terzibaschtsch

WS 1 (ex-City of Havana, ex-José Martí, ex-Northway, ex-LSD 11)
 Displacement: 4,790 tons standard (9,375 tons full load)
 Dimensions: 454 (w.l.), 457½ (o.a.) × 72½ × 18 (max.) feet
 Machinery: S.H.P.: 7,000=15 kts.
 Boilers: 2

General

Built for the U.S. Navy as a Landing Ship, Dock by the Newport News Shipbuilding & Dry Dock Co., Newport News, Virginia. Launched in 1943. Transferred to the United Kingdom as Northway on 15 Feb. 1944 under lease lend. Purchased by Germany in 1962 from the West Indian Fruit & S.S. Co., Inc., Norfolk, Virginia. Employed as accommodation ship (Wohnschiff)

FRIEDRICH VOGEL (ex-Kurefjord, 1943) Former tug. Pennant No. Y 888.

Measurement: 179 tons gross
 Machinery: Diesel, B.H.P.: 500

KARL KOLLS (ex-Salmo, ex-Gerda I, ex-Margarethe, ex-Nora) Y 887

Measurement: 189 tons gross
 Machinery: H.P.: 160

General

Both experimental tenders of the Erprobungsstelle für Marinewaffen in Eckernförde. Karl Kolls, former small freighter, is fitted with one torpedo tube.

OTTO MEYCKE Pennant No. Y 882 Taucherboot (diving boat). Fishing cutter type.

SUPPLY SHIPS (Tross-schiffe)



DITHMARSCHEN

1963, Giorgio Arra

ANGELN (ex-Borée)

2 "Angeln" Class

DITHMARSCHEN (ex-Hébé)

Measurement:
 Machinery:

2,111 tons gross
 Pielstick diesels, 1 shaft, B.H.P.: 3,000=17 kts.

General

Both built by Ateliers et Chantiers de Bretagne, Nantes. Purchased from ship-owners S. N. Caennaise, Caen, Launched in 1954-55. Coccisioned on 27 Nov. 1959 and 19 Dec. 1959, respectively. Pennant Nos.: A 1408 and 1409, respectively. Rated as Materialtransporter. A photograph of Angeln appears in the 1961-62 to 1964-65 editions.



SCHWARZWALD

1963, Stefan Terzibaschtsch

SCHWARZWALD (ex-Amalthee)

Measurement:

1,103 tons gross

Guns:

4—40 mm. AA. Bofors

Machinery:

Sulzer diesel, 2-str. single acting, B.H.P.: 3,000=17 kts.

General

Built by Ch. Dubigeon, Nantes. Launched 31 Jan. 1956. Purchased from Soc. Navale Caennaise in Feb. 1960. Commissioned as ammunition transport. Pennant No. A 1400.



SAUERLAND

1965, Stefan Terzibaschtsch

SAUERLAND (ex-Rolandseck)

Measurement:

1,299 tons gross, 1,755 tons deadweight

Displacement:

233½ × 36½ × 16½ feet

Machinery:

M.A.N. diesel, B.H.P.: 1,380=12 kts.

General

Built by Atlas Werke, Bremen. Completed in 1953. Purchased in 1960 for service with the armed forces' supply organisation. In service 1960. Pennant No.: Y 830.

PFÄLZERLAND (ex-Lucetta)

Measurement:

299 tons gross, 521 tons deadweight

Dimensions:

156½ × 26 × 8½ feet

Machinery:

2 M.W.M. diesels, 2 shafts, B.H.P.: 300=10.5 kts.

General

Built by W. & E. Sielaff, Büsum. Completed in 1956. Purchased in 1960 for service with the armed forces' supply organisation. In service 1960. Pennant No.: Y 831.

SIEGERLAND (ex-Leuchtenburg 3)

Measurement:

280 tons gross, 350 tons deadweight

General

Built in 1952. Material-Versorger. Pennant No. Y 832.

SAIL TRAINING SHIPS

GORCH FOCK

Displacement:

1,760 tons standard (1,870 tons full load)

Dimensions:

229½ (w.l.), 257 (o.a.) × 39½ × 15½ feet

Machinery:

Auxiliary M.A.N. diesel, B.H.P.: 800=11 kts.

Sail area:

21,141 sq. ft. (speed of up to 15 kts. under sail)

Radius:

1,990 miles

Complement:

206 (10 officers, 56 ratings, 140 cadets)

General

Sail training ship of the improved "Horst Wessel" type. Barque rig. Launched by Blohm & Voss, Hamburg, on 23 Aug. 1958 and commissioned on 17 Dec. 1958.

NORDWIND

Displacement:

100 tons

Dimensions:

78½ × 22 × 9 feet

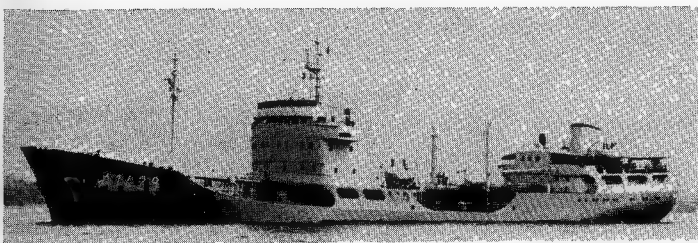
Machinery:

Diesel, B.H.P.: 150=8 kts. (Sail area 2,037½ sq. ft.)

General

Ketch, ex-Kreisfischkutter (KFK). Photograph in the 1954-55 edition. There are other vessels of various sailing types: Achat, Argonaut, Borasco, Diamant, Domyaff, Filbustier, Freibeuter, Geuse, Gädicke Michel, Gunnar, Hadubrand, Hundling, Kaper, Klipper, Korsar, Kuckuck, Likendeeler, Magellan, Mime, Mistral, Monsun Nachtigall, Orwin, Ostwind, Pampero, Samum, Schirocco, Seeteufel, Sigmund, Störtebecker, Talfun, Tornado, Westwind, Wiking, Vitalienbrüder.

OILERS



EIFEL

1964, Erich Gröner

EIFEL (ex-Friedrich Jung) A 1429

Displacement: 2,279 tons light (4,700 tons full load)
 Measurement: 3,444 tons gross, 4,720 tons deadweight
 Dimensions: 334 × 47½ × 23½ feet
 Machinery: H.P.: 3,360—14 kts.

General
 Built in 1958 by Norder-Werft, Hamburg. Purchased in 1963 for service as an oiler in the Bundesmarine. Commissioned on 27 May 1963.

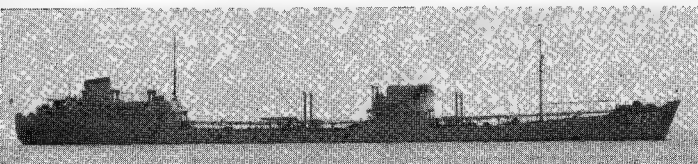
HARZ (ex-Claere Jung) A 1428

Displacement: 1,308 tons light (3,696 tons full load)
 Measurement: 2,594 tons gross, 3,755 tons deadweight
 Dimensions: 303½ × 43½ × 21½ feet
 Machinery: H.P.: 2,520=13 kts.

General
 Built in 1953 by Norder-Werft, Hamburg. Purchased in 1963 for service as an oiler in the Bundesmarine. Commissioned on 27 May 1963.

New Construction

Four medium type oilers of 4,500 tons displacement and four small type oilers of 1,200 tons displacement are projected under the new construction programme.



FRANKENLAND

1963, courtesy Godfrey H. Walker, Esq.

FRANKENLAND (ex-Münsterland, ex-Powell) Y 827

Displacement: 16,310 tons
 Measurement: 11,700 tons gross
 Dimensions: 521½ × 70½ × 37½ feet
 Machinery: Diesels. B.H.P.: 5,800=13.5 kts.

General
 Built by Lithgows, Glasgow. Launched in 1950. Commissioned on 29 Apr. 1959.

JEVERLAND (ex-Ammerland, ex-Kongsdal) Y 826

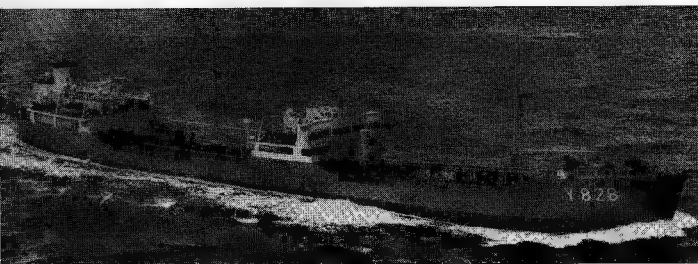
Displacement: 14,890 tons
 Measurement: 9,949 tons gross
 Dimensions: 492½ × 66 × 36½ feet
 Machinery: Diesels. B.H.P.: 4,100=12 kts.

General
 Built by Vulkan, Bremen. Launched in 1937. Commissioned on 29 Apr. 1959.

BODENSEE (ex-Unkas)**WITTENSEE** (ex-Sioux)

Displacement: 1,200 tons
 Measurement: 1,230 tons deadweight, 980 tons gross
 Dimensions: 208½ × 32½ × 15 feet
 Machinery: Diesels. B.H.P.: 1,050—1,250=12 kts.

General
 Built by P. Lindenau, Kiel-Friedrichsord. Launched on 19 Nov. 1955 and on 23 Sep. 1958, respectively. Commissioned on 26 Mar. 1959. These ships are nearly identical. Pennant Nos.: A 1406 and A 1407, respectively.



EMSLAND

1965, Skyfotos

EMSLAND (ex-Antonio Zotti)**MÜNSTERLAND** (ex-Angela Germana)

Measurement: 6,200 tons gross (Emsland), 6,191 tons gross (Münsterland)
 Dimensions: 461 × 54½ × 25½ feet
 Machinery: Diesel. C.R.D.A. B.H.P.: 4,800 (Emsland), Fiat B.H.P. 5,500 (Münsterland)=13 kts.

General
 Built by C.R.D.A., Monfalcone, and Ansaldo, Genoa, respectively. Both launched in 1943. Completed in 1947 and 1946, respectively. Purchased in 1960 from Italian owners. Converted in 1960-61 by Schliekerwerft, Hamburg, and Howaldtswerke, Hamburg, respectively. Commissioned on 7 Nov. 1961 and 16 Oct. 1961. Civilian crew. Pennant Nos.: Y 828 and Y 829, respectively.

BORKUM (ex-U.S.N. 105, ex-Borkum) Y 824

Displacement: 450 tons
 Measurement: 265 tons gross
 Dimensions: 124½ × 26½ × 12 feet
 Machinery: Diesels. Speed=6 kts.

General
 Built by Flender Lübeck. Launched in 1939. Former German motor tanker.

EUTIN (ex-Ramsöy) Y 825

Displacement: 410 tons
 Machinery: Speed=6 kts.

General
 Built by Menzer, Geesthacht. Launched in 1943. Commissioned on 1 July, 1956.

TRIALS VESSELS



ADOLF BESTELMEYER

1962, Erich Gröner

ADOLF BESTELMEYER (ex-BYMS 2213)**H. C. OERSTED** (ex-Vinstra, ex-NYMS 247) **RUDOLF DIESEL** (ex-BYMS 2279)

Displacement: 270 tons standard (350 tons full load)
 Dimensions: 136 × 24½ × 8 feet
 Machinery: 2 diesels. 2 shafts. B.H.P.: 1,000=15 kts.

General
 Of U.S. YMS type. Built in 1943. Adolf Bestelmeyer and Rudolph Diesel are used for gunnery purposes. Pennant Nos.: Y 881 (Adolf Bestelmeyer), Y 889 (Rudolph H. C. Oersted, Y 877, was acquired from the Royal Norwegian Navy, Herman von Helmholtz, Y 878, commissioned on 18 Dec. 1962, is used as a degaussing ship.

VIKTORIA (ex-Herzog Friedrich) Y. 808

Measurement: 111 tons gross
 Dimensions: 84½ × 16½ × 8½ feet
 Machinery: 1 Deutsche Werke diesel. B.H.P.: 240

General
 Built in 1901. Commissioned on 1 Dec. 1960 as an experimental vessel.

TF 101	TF 102	TF 103	TF 104	TF 105
Displacement:	35 to 40 tons			
Dimensions:	59 to 80½ × 14 × 5 feet			
Machinery:	Speed=18 to 22 kts.			

General
 Of the admiral's barge type. Torpedo recovery boats. Built in 1939-40. TF 101-104 are in the Erprobungstelle für Marinewaffen (experimental station for Naval weapons). Pennant Nos.: Y 883, T 884, Y 885, Y 886, Y 835, respectively.

TF 25**TF 26**

Displacement: 25 tons
 Dimensions: 74 × 13½ × 4 feet
 Machinery: Diesels: 1 shaft. B.H.P.: 320=14½ kts.
 Oil fuel: 2 tons
 Radius: 1,300 miles at 12 kts.

General
 Former German Air Force torpedo recovery boats. Patrol vessels employed as training tenders. Pennant Nos.: Y 806 and 807.

EF 1

General
 Trials vessel commissioned on 30 Nov. 1961. Pennant No. Y 890.

Surveying Vessels

Surveying vessels include Meteor (1964), Süderoog, Gauss, Hooge, Ruden, Atair, Rungholt and Wegg but all these belong to the Federal Ministry of Transport.

Fishery Protection Vessels

Fishery Protection Vessels include Poseidon, Anton, Dohrn, Meerkatze, Frithjof and Uthorn, but all these belong to the Federal Ministry for Agriculture and Fisheries.

TUGS

AMRUM	FÖHR	NEUWERK	SYLT
Displacement:	262 tons standard		
Dimensions:	100½ (o.a.) × 25½ feet		
Machinery:	1 Deutz diesel. B.H.P.: 800=12 kts.		

General
 Built by Fr. Schichau, Bremerhaven. Launched in 1961. All completed and commissioned in 1962-63. Pennant Nos.: Y 822, Y 821, YY 823, and Y 820, respectively.

EISBAR**EISVOGEL**

Displacement: 560 tons standard
 Dimensions: 125½ (o.a.) × 31½ × 7½ (15½ max.) feet
 Guns: Can carry 1—40 mm. AA. Bofors
 Machinery: 2 Maybach diesels. 2 shafts. B.H.P.: 2,400=13 kts.

General
 Built by J. G. Hitzler, Lauenburg. Launched on 9 June 1960 and 28 Apr. 1960, respectively and commissioned on 1 Nov. 1961 and 11 Mar. 1961. Can serve as ice-breakers or tugs. Pennant Nos. A 1402 and A 1401, respectively.

PASSAT (ex-U.S.N. 103, ex-Passat)

Displacement: 460 tons
 Dimensions: 118 × 26½ × 13 feet
 Machinery: Diesels. B.H.P.: 650=11 kts.

General
 Built at Deutsche Werke, Kiel. Launched in 1936. Commissioned on 30 Nov. 1956. Pennant No.: Y 800.

PELLWORM (ex-U.S.N. 102 (ex-Pellworm))

Displacement: 500 tons
 Measurement: 276 tons gross
 Dimensions: 127 × 28 × 11½ feet
 Machinery: 1 diesel. 1 shaft. B.H.P.: 800=12 kts.

General
 Pellworm was built in 1939 at Schichau, Königsberg. Commissioned on 1 Nov. 1956. Pennant No.: Y 801.

PLÖN

Measurement: 101 tons gross
 Machinery: H.P.: 350

General
 Tug for Kiel purchased in 1956. Pennant No.: Y 802.

BLAUORT Y 803 (1 Dec. 1960)**NORDSTRAND** Y 817 (25 Feb. 1959)**KNECHTSAND** Y 814 (18 Dec. 1958)**SCHARHÖRN** Y 815 (2 Jan. 1959)**LANGENESS** Y 819 (29 Apr. 1959)**TRISCHEN** Y 818 (7 Apr. 1959)**LUTJE HÖRN** Y 812 (1 Oct. 1958)**VOGELSAND** Y 816 (21 Jan. 1959)**MELLUM** Y 813 (10 Nov. 1958)

General
 Small harbour tugs. Pennant Nos. and commissioning dates against names above.

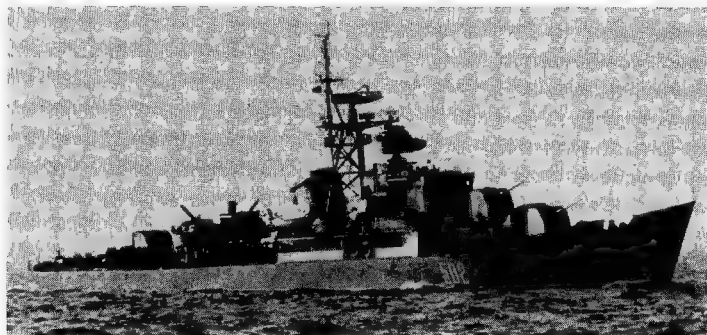
GERMANY (EAST)

Commander-in-Chief, Volksmarine:
Rear Admiral Willi Ehm
Chief of Naval Staff:
Rear Admiral Heinz Neukirchen

Naval Personnel:
11,000 (1,000 officers, 10,000 men)

Mercantile Marine
Lloyd's Register of Shipping:
249 vessels of 502,246 tons gross

FRIGATES



KSS 502

1965, Werner Kähling



ERNST THÄLMANN

1962

4 Ex-U.S.S.R. "Riga" Type

ERNST THÄLMANN (KSS 401)
FRIEDRICH ENGELS (KSS 403)

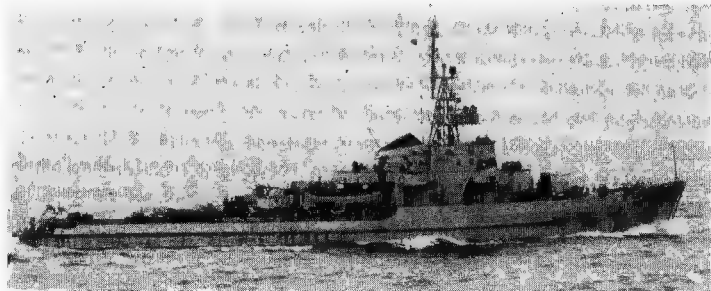
KARL LIEBKNECHT (KSS 402)
KARL MARX (KSS 404)

Displacement: 1,050 tons standard (1,350 tons full load)
Dimensions: 278½ (o.a.) × 31½ × 9 feet
Guns: 3—3.9 inch single, 4—37 mm. AA. paired vertically
Tubes: 3—21 inch
A/S weapons: 4 depth charge projectors
Machinery: Geared turbines, 2 shafts. S.H.P.: 24,000=28 kts.
Oil fuel: 300 tons
Complement: 190

General

Of the Soviet "Riga" type. Designed to carry 50 mines. Originally numbered 1-61, 1-62, 1-63, 1-64, then 40, 41, 42, 43. All now have lattice mast. A fifth ship of this type was burnt out at the end of 1959 and became a total wreck. A starboard quarter aerial view of Ernst Thälmann showing minelaying stern, appears in the 1960-61 edition, and a starboard bow surface view in the 1961-62 and 1962-63 editions. Pennant No. 502 is also used (see photograph above).

MINESWEEPERS



MLR 163

Added 1963, Lieut. Nigel Peddie, S.A.N.

10 "Krake" Class

MLR 121 MLR 163 MLR 221 MLR 263 MLR 342
MLR 142 MLR 191 MLR 242 MLR 321 MLR 363

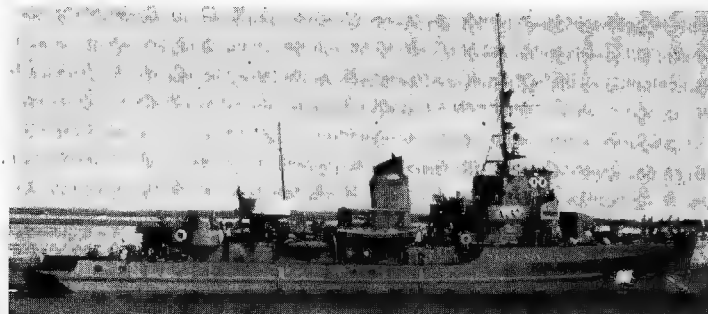
Displacement: 650 tons
Dimensions: 229½ × 26½ × 12½ feet
Guns: 1—3.4 inch, 10—25 mm. AA. paired vertically
A/S weapons: 4 D.C.T.
Mines: Fitted for laying
Machinery: Diesels, 2 shafts. B.H.P.: 34,000=18 kts.
Complement: 80 (peace). 96 (war)

General

Built in 1956-58 at Peenewerft, Wolgast. The first four were completed in 1958, originally for Poland, but not delivered. Appearance is different compared with the first type, the squat wide funnel being close to the bridge work with a lattice mast and radar. Formerly numbered 6-17, 6-37, 6-41 to 6-47 and 6-91, but now assigned three digit numbers as above. A port broadside view of MLR 6-47 appears in the 1958-59 and 1959-60 editions, a starboard quarter aerial view of MLR 6-42, showing minesweeping stern, in the 1960-61 edition, and a port broadside view of 6-42 in the 1961-62 and 1962-63 editions.

These ten MLR and the following twelve are reported to have changed their tactical numbers: On 1 Mar. 1961 they were given the names of the capitals of districts, etc., of Eastern Germany. Names reported: AUE, BERLIN, BRANDENBURG, COTTBUS, DRESDEN, ERFURT, FORST, FRANKFURT, ODER, GERA, GUBEN, HALLE, KARLMARXSTADT, LEIPZIG, MAGDEBURG, POTSDAM, ROSTOCK, SASSNITZ, SCHWERIN, SENFTENBERG, STRALSUND, SUHL and WEIMAR.

Minesweepers—continued



MLR 616

1963, Erich Gröner

6 "Habicht I" Class

MLR 611 MLR 612 MLR 613 MLR 614 MLR 615 MLR 616
Displacement: 550 tons
Dimensions: 213 (o.a.) × 26½ × 11½ feet
Guns: 1—3.4 inch, 8—25 mm. AA. paired vertically
A/S weapons: 4 D.C.T.
Mines: Fitted for laying
Machinery: 2 diesels. 2 shafts. B.H.P.: 2,800=18 kts.

General

Ex-6-91, 6-92, 6-71-74, ex-6-111-116, ex-6-21 to 6-26. These vessels are a modification of the "Habicht I" class, but lengthened by 20 feet amidships. Built at Wolgast Peene Yard. All welded. All completed in 1955-56. A starboard broadside view of MLR 6-16 (ex-6-71, ex-116, ex-626) appears in the 1956-57 to 1959-60 editions, and a starboard quarter aerial view of MLR 6-11, showing minesweeping stern, in the 1960-61 to 1962-63 editions.



MLR 740

1963, Erich Gröner

6 "Habicht I" Class

720 740 760 780 R 21 R 22
Displacement: 500 tons standard
Dimensions: 193½ (o.a.) × 26½ × 11½ feet
Guns: 1—3.4 inch, 8—25 mm. AA., 2—20 mm. AA.
A/S weapons: 4 D.C.T.
Mines: 18
Machinery: Diesels, 2 shafts. B.H.P.: 2,400=17 kts.

General

Ex-MLR 6-31 to 6-36, ex-331-336, ex-031-036, formerly 611 to 616. Habicht means Hawk. Modified German M 40 type minesweepers but with diesel propulsion. Prefabricated in five sections and assembled at Volkswerft, Stralsund. Laid down in 1952-53, launched in 1952-54 and completed in 1952-54. All welded. MLR 6-33 sank early in 1958 but was salvaged and repaired in 1959 and serves as a rescue ship. A starboard bow view of MLR 6-31 (ex-331, ex-031, ex-611) appears in the 1956-57 to 1959-60 editions.

Four ships are employed as patrol escort ships as well as minesweepers, with numbers 720, 740, 760, 780, the other two having been converted to rescue ships in 1961 and numbered R 21 and R 22.

TRAINING SHIPS

1 Ex-Danish Type

ALBIN KÖBIS (ex-Ernst Thälmann, ex-Dorsch, ex-Hvidbjørnen)
Displacement: 1,050 tons
Dimensions: 220 (o.a.) × 32½ × 16½ (max.) feet
Guns: 1—3.4 inch, 2—37 mm. AA., 4—25 mm. AA.
Machinery: Triple expansion, 1 shaft, 1,800=14.5 kts.
Boilers: 2 water tube
Oil fuel: 140 tons
Radius: 3,300 miles at 12 kts.

General

Ex-Danish fishery protection ship Hvidbjørnen. Launched in 1928 and completed in 1929. Rebuilt and modernised in 1953-54 as a corvette at Matthias Thesen Yard, Wismar. The name Dorsch was borne only during this period for disguise. Fitted with new boilers at Rostock in the spring of 1957. Employed as a training ship for officers candidates until 1963, when she was reported to be little more than a hulk. A photograph of Albin Köbis appears in the 1956-57 to 1963-64 editions.

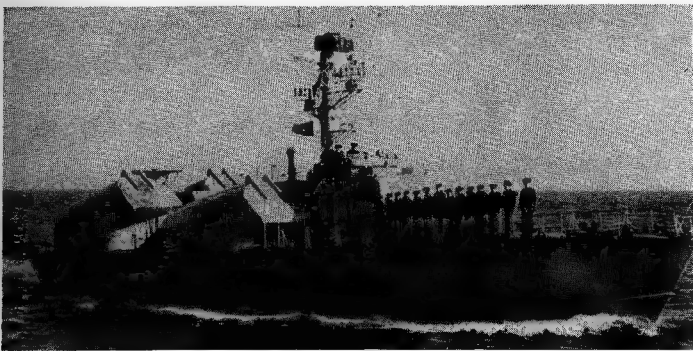
WILHELM PIECK

Displacement: 200 tons
Machinery: Diesel, 1 shaft. B.H.P.: 106=8 kts.

General

Brigantine employed as a school ship. Built in 1951. Photo in 1955-56 edition. Also yachts, Ernst Thälmann, 150 tons, Horst Ludwig, Jonny Scheer, 120 tons, and Ostseeland, 300 tons, and Max. Riechpietsch, Albin Köbis, Heigoland and Knecht-sand, and Freundschaft and Patriot, ex-German R-boat type coastal minesweepers.

GUIDED MISSILE PATROL BOATS



OSA Type 1965, Reinecke

2 U.S.S.R. "Osa" Class

Displacement: 160 tons standard (200 tons full load)
Dimensions: 121½ (pp.), 131½ (o.a.)×28×5 (mean), 6½ (max.) feet
Guided weapons: 4 large hooded missile launchers in 2 pairs abreast
Guns: 4—25 mm. (2 twin, 1 forward, 1 aft)
Machinery: 3 diesels, Speed=35 kts.

General
A development of the motor torpedo boat or motor gunboat type. Reported to have been launched in 1964.

PATROL VESSELS



No. 811 1964, courtesy Herr Werner Köhling

14 U.S.S.R. "S.O.I" Type

ADLER	FALKE	KRANICH	REIHER
Displacement:	215 tons standard (250 tons full load)		
Dimensions:	138 (pp.), 147½ (o.a.)×20×10 (max.) feet		
Guns:	4—25 mm. AA. (2 twin mounts)		
A/S weapons:	4 ahead throwing launchers. 2 D.C.T.		
Machinery:	3 diesels, B.H.P.: 3,500=28 kts.		
Complement:	30		

General
Submarine chasers. Fitted with mine rails. Class includes Pennant Nos. 774, 811, 846, the two latest acquired in 1961 from the U.S.S.R.



HAI Type 1965, Reinecke

25 "Hai" Class

PC 1	PC 2	PC 3	PC 4
Displacement:	300 tons standard (370 tons full load)		
Dimensions:	174 (pp.); 187 (o.a.)×19×10 feet		
Machinery:	Diesels and gas turbines. Speed 25 kts.		

General
Submarine chasers built at Peenewerft, Wolgast. The prototype completed construction in 1963. She has two large funnels abreast. Four reported to be in service by the end of 1964. The number reported to be operational in 1965 varied between six and 24. Names and pennant numbers are very uncertain.

FISHERY PROTECTION VESSELS

ROBERT KOCH

Displacement: 1,520 tons
Dimensions: 217 (o.a.)×32×14½ feet
Machinery: 2 diesels, 2 shafts. B.H.P.: 1,800=14.5 kts.

General
Trawler type. Launched in 1955 at the Neptun Yard, Rostock, and completed at the Matthias-Thesen Yard, Wismar. Crew 44. (A new fishery protection vessel is planned at Peenewerft, Wolgast. Two small vessels are Professor Henking (ex-Neues Deutschland), and Dr. Friedrich Wolf (1957), both 100 tons, 14 kts.)

MOTOR TORPEDO BOATS



No. 306 1965, Werner Köhling

P 6 Class 1960, Erich Gröner

27 Ex-U.S.S.R. "P 6" Class

101	104	107	201	204	207	301	304	307
102	105	108	202	205	208	302	305	308
103	106	109	203	206	209	303	306	309

Displacement: 75 tons
Dimensions: 85½×20×6 (max.) feet
Guns: 4—25 mm. (2 twin mountings)
Tubes: 2—21 inch
Machinery: 4 diesels, B.H.P.: 4,800=43 kts. (max.)

General
Large interchangeable motor torpedo boats acquired in 1957-60 from the U.S.S.R. Wooden hull. Names include HANS BEIMLER, HANS COPPI and JOSEF ROEMER.

2 "Seeteufel" Class

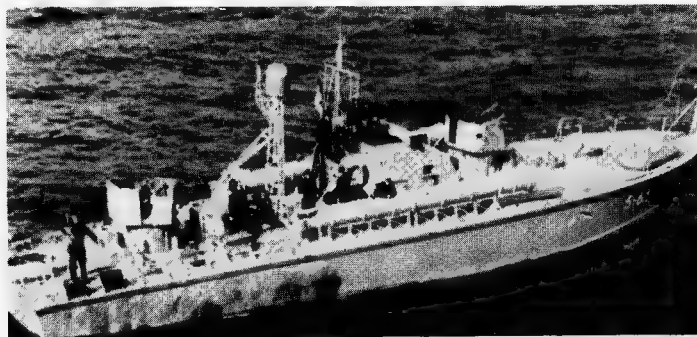
Displacement: 150 tons
Guns: 2—25 mm. AA.
Tubes: 2—21 inch
Machinery: Diesels, Speed=35 kts.

General
Torpedoschnellboote. Laid down in 1958. Built at Peenewerft, Wolgast.

12 "Forelle/Iltis" Class

5-91	5-92	5-93	5-94	5-95	5-96	5-97	5-98
Displacement:	55 tons						
Dimensions:	88½×20×5½ feet						
Guns:	2—25 mm. AA., 4—15 mm. AA.						
Tubes:	2—21 inch						
Machinery:	2 diesels, B.H.P.: 5,000=40 kts.						

General
First launched in 1956 at Schiffswerft, Rossau. Seven more were built at Peenewerft, Wolgast. Four more are of recent construction.



No. 5-61 1965, Werner Köhling

9 Ex-U.S.S.R. "PA 3" Class

5-61 (ex-821)	5-63 (ex-823)	5-65 (ex-825)	5-67 (ex-827)
5-62 (ex-822)	5-64 (ex-824)	5-66 (ex-826)	5-68 (ex-828)
			5-69 (ex-829)

Displacement: 50 tons
Dimensions: 82×20×5½ feet
Guns: 4—25 mm. AA.
Tubes: 2—21 inch
Machinery: Diesels, Speed=42 kts.

General
Built 1952-55. Purchased from U.S.S.R. 1957. Fitted out by Peenewerft, Wolgast.

TENDERS

Sixteen auxiliary vessels service the East German Navy, including the netlayer H 42 (1955), 475 tons, 10.5 kts.; and the tenders H 41 and H 43 (1957), 300 tons, 10 kts. For experimental purposes there are Rosa Luxemburg (1950) and Wilhelm Liebknecht (1951), 475 tons, 10 kts.; Meteor (1956), 435 tons, 10.5 kts.; and Saturn (1956), 110 tons 9 kts. Also Alfred Merz, buoy tender; and Karl F. Gauss, coastal survey ship, all of the same seiner type.

INSHORE MINESWEEPERS



S 344

1964, Erich Gröner

37 "Schwalbe II" Class

Displacement: 100 tons standard
 Dimensions: 105 (o.a.) \times 18 \times 3½ (max.) feet
 Machinery: 2 diesels. B.H.P.: 380=12.5 kts.

General

Small minesweepers of medium speed built in 1955-57 at V.E.B. Yachtwerft, Berlin. Names reported: EISLEBEN, FREIBERG, GREIZ, GUSTROW, HAGENAU, ILMENAU, MEININGEN, POSSNECK, ZEITZ, ZWICKAU.

MINESWEEPING BOATS



No. 7-31

1965, Werner Kähling

50 "Schwalbe" Class

7-11	7-17	7-26	7-35	7-44	7-53	D 01	D 08
7-12	7-21	7-27	7-36	7-45	7-54	D 02	D 09
7-13	7-22	7-31	7-37	7-46	7-55	D 03	D 10
7-14	7-23	7-32	7-41	7-47	7-56	D 04	D 11
7-15	7-24	7-33	7-42	7-51	7-57	D 05	D 12
7-16	7-25	7-34	7-43	7-52	7-91	D 06	D 13
						D 07	D 14

Displacement: 50 tons
 Dimensions: 85½ \times 14½ \times 4½ feet
 Guns: 2—25 mm. AA.
 Machinery: Diesels. 2 shafts. B.H.P.: 300=17 kts.

General

Launched in 1954-56. D 01 to D 14 are unarmed for survey purposes.

LANDING CRAFT



ROBBE

1965, Reinecke

6 "Robbe" Class

Displacement: 600 tons standard (800 tons full load)
 Guns: 2—45 mm. AA. (1 twin); 4—25 mm. AA. (2 twin)
 Machinery: Speed=12 kts.

General

Amphibious vessels of a new type midway between the landing ship and landing craft categories. Reported to have been launched in 1963.

12 "Labo" Class

No. 607

Displacement: 100 tons light; 150 tons standard (200 tons, full load)
 Dimensions: 131½ \times 28 \times 6 feet
 Guns: 4—25 mm. AA. (2 twin)
 Machinery: Speed=10 to 12 kts.

General

Landing craft of a new light type. Built by Peenewerft, Wolgast. Reported to have been launched in 1959-60 and 1961-63.

HARBOUR DEFENCE BOATS



KRS 4-46

Added 1963, Erich Gröner

45 "Delphin/Tummler" Class

4-11	4-21	4-31	4-41	4-91	4-97	G 311	G 323
4-12	4-22	4-32	4-42	4-92	4-98	G 312	G 324
4-13	4-23	4-33	4-43	4-93	4-99	G 313	G 331
4-14	4-24	4-34	4-44	4-94		G 314	G 332
4-15	4-25	4-35	4-45	4-95		G 321	G 333
4-16	4-26	4-36	4-46	4-96		G 322	G 334

Displacement: 50 tons
 Guns: 2—25 mm. AA. or 4—15 mm. AA. Also carry 4 D.C.
 Machinery: 3 Jumo diesels. B.H.P.: 1,000=25 kts.

General

Küsten- und Reede Schutzboote (Coastal and harbour defence boats) of all metal construction. Reported only twelve remain effective.

COASTAL DEFENCE BOATS

48 "Sperber" Class

3-11	3-17	3-25	3-33	3-41	3-47	G 171	G 131
3-12	3-18	3-26	3-34	3-42	3-48	G 172	G 132
3-13	3-21	3-27	3-35	3-43	G 111	G 181	G 141
3-14	3-22	3-28	3-36	3-44	G 112	G 182	G 142
3-15	3-23	3-31	3-37	3-45	G 161	G 121	G 151
3-16	3-24	3-32	3-38	3-46	G 162	G 122	G 152

Displacement: 53 tons (73 tons full load), 3-31 to 3-38, 3-41 to 3-48, G 121-152, 56 tons (76 tons full load)

Dimensions: 85½ (o.a.) 3-31 to 3-38, 3-41 to 3-48, G 121-152, 96 \times 16 \times 5 feet

Guns: 3—15 mm. AA., 10 D.C.
 Machinery: 3 Jumo diesels. B.H.P.: 1,800=25 kts.

General

All built in 1951-54. Küsten Schutzboote, G 111 to G 152 belonged to the Grenzbrigade Küste (frontier patrol). Some are no longer effective.

Training Boats

There are also the coastal boats Partisan and Pioneer, launched in 1957, 79 tons 13 knots, rated as schulschiffe.

SURVEYING VESSELS

METEOR (1961)

Displacement: 465 tons
 Dimensions: 130½ (o.a.) \times 24 \times 10 feet
 Machinery: Diesel. B.H.P.: 400=10.5 kts.

General

A new hydrographic vessel built by Volkswerft Stralsund. 330 tons gross.

JOHANN L. KRÜGER (1951)

Displacement: 475 tons
 Machinery: Diesel. B.H.P.: 400=10.5 kts.
 Dimensions: 128 \times 24 \times 11 feet

General

Built at VEB Rosslauer Shipyard, Rosslau, River Elbe. Launch dates above. 260 tons gross. Also Jordan and Magnetologe (1954), 135 tons 10 kts., (German KFK type); Arkona, Darßer Ort and Stubbenkammer (1956), 55 tons, 10 kts. (cutter type); and Flaggteuf (ex-Stralsund) and Hydrograph (1953) 30 tons, 8 kts.

HELMUT JUST (1952)

OILERS

RIEMS

Displacement: 1,000 tons full load
 Dimensions: 195 (o.a.) \times 29½ \times 12½ (max.) feet
 Machinery: 2 diesels. B.H.P.: 2,800=14 kts.

General

Built at Peenewerft, Wolgast, in 1960-61 Crew 26. There is also H 44.

New Construction

Three new oilers were built by Mathias-Thesen-W., Wismar, 585 tons, 9 knots.

TUGS

H 35 (ex-925)	H 36 (ex-926)	H 37 (ex-927)	WISMAR (ex-Lossen)
Displacement: 700 tons			
Machinery: H.P.: 1,200=14 kts.			

General

A photograph of H 36 (ex-926) appears in the 1956-57 to 1959-60 editions. Also the small seagoing tugs H 12, H 32, H 34, 300 tons, 10 kts., built in 1957. There are also the icebreaking tugs Eisbär and Eisvogel, built in 1958, 1,100 H.P.

A rescue tug is being built by Peenewerft, Wolgast, to a 1,500 tons, 14 kts. design.

GHANA

FRIGATE



NEW FRIGATE (Model) 1965, Ghana Navy, Official

1 New Construction

- Displacement: 2,300 tons standard (2,520 tons full load)
Dimensions: 320 (pp.), 330 (w.l.), 339½ (o.a.)×40×12 feet
Guns: 2—4 inch (1 twin); 4—40 mm. Bofors (single)
2—2 inch rocket flare launchers; 2 portable saluting
A/S weapons: 1 Limbo. three-barrelled depth charge mortar
Machinery: 8 diesels, 2 shafts, Controllable pitch propellers
Oil fuel: 230 tons
Radius: 4,800 miles at 15 kts.
Complement: 200 to 210

General

Frigate/Despatch Vessel specially designed by the British Ministry of Defence, (Royal Navy). Being built by Yarrow & Co. Ltd., Scotstoun, Glasgow. Her hull and machinery will basically conform to the "Leopard" Class, Type 41 standards but she will have revised scheme of layout and a different armament. The primary roles of the ship will be Escort, Patrol and Training and as a Despatch Vessel with special accommodation for official passengers. She will be fitted with Decca radar sets type ASW 1 and 978, and with stabilisers. The auxiliary machinery will comprise four diesel generators. Although broadly similar to the British anti-aircraft frigates she will have orthodox funnel, and will be flush-decked instead of broken-nosed. She will be equipped with a helicopter platform. A second frigate is in prospect.

CORVETTES



KROMANTSE 1965, Ghana Navy, Official

2 "Kromantse" Class

KROMANTSE F 17

- Displacement: 440 tons light, 500 tons standard (590 tons full load)
Dimensions: 160 (pp.), 162 (w.l.), 177 (o.a.)×28½×13 (max.) feet
Guns: 1—4 inch, 1—40 mm. AA. (see notes)
A/S weapons: 1 Squid triple-barrelled depth charge mortar
Machinery: 2 Bristol Siddeley Maybach diesels, 2 shafts.
B.H.P.: 7,100=20 kts.
Radius: 2,000 miles at 16 kts.
Complement: 54 (6+3 officers, 45 ratings)

KETA F 18

General

Anti-submarine vessels of a novel type designed by Vosper Ltd., Portsmouth, a joint venture with Vickers-Armstrongs, Ltd., one ship being built by each company. Comprehensively fitted with sonar, air and surface warning radar. Vosper roll damping fins, and air conditioning throughout excepting machinery spaces. The electrical power supply is 440 volts, 60 cycles a.c. The originally proposed twin 40 mm. mounting was suppressed to save top weight. A very interesting patrol vessel design, an example of what can be achieved on a comparatively small platform to produce an inexpensive and quickly built anti-submarine vessel. Kromantse was launched by Vosper Ltd. at the Camber Shipyard, Portsmouth, on 5 Sep. 1963, and commissioned on 27 July 1964. Keta was launched at Newcastle on 18 Jan. 1965, and commissioned on 4 May 1965. It is anticipated that there will be four corvettes in due course, and a support ship for corvettes to refuel them at sea and increase their endurance.

COASTAL MINESWEEPERS



EJURA 1964, Ghana Navy, Official

1 "Ton" Class

EJURA (ex-Aldington) M 16

- Displacement: 360 tons standard (425 tons full load)
Dimensions: 140 (pp.), 153 (o.a.)×28½×8½ feet
Guns: 1—40 mm. Bofors AA. forward, 2—20 mm. AA. aft
Machinery: Deltic diesels, 2 shafts. B.H.P.: 3,000=15 kts. (max.)
Oil fuel: 45 tons
Complement: 27

General

Lent to Ghana by Britain in 1964. Another unit of this class may be acquired.

H

TRAINING SHIP



ACHIMOTA 1964, Ghana Navy, Official

1 Yacht Type

ACHIMOTA (ex-Kantamento, ex-Radiant) A 15

- Displacement: 600 tons
Dimensions: 174 (o.a.)×28×14 feet
Machinery: Diesels. 2 shafts. Speed=13 kts. (max.)
Oil fuel: 60 tons
Complement: 35 (with additional accommodation for 30)

General

Built in 1927 by Camper & Nicholson, Ltd., England, for the Commodore of the Royal Yacht Squadron. Converted into an anti-submarine vessel during the Second World War. After hostilities sold to the Abington Steamship Co. Ltd., for Mediterranean cruisers. Later re-engined and modernised. The Ghana Government then purchased her for use as a State Yacht. In Feb. 1963 she was transferred to the Ghana Navy and converted into a Training Depot Ship. She also serves as the Flagship of the Commodore of the Ghana Navy.

INSHORE MINESWEEPERS



AFADZATO 1964, Ghana Navy, Official

2 "Ham" Class

AFADZATO (ex-Ottringham) M 12

YOGAGA (ex-Malham) M 11

- Displacement: 120 tons standard (159 tons full load)
Dimensions: 100 (pp.), 107½ (o.a.)×22×5½ feet
Guns: 1—20 mm. Oerlikon AA.
Machinery: 2 Paxman diesels, B.H.P.: 1,000=14 kts.
Oil fuel: 15 tons
Complement: 22

General

Malham, commissioned on 2 Oct. 1959, and Ottringham, commissioned on 30 Oct. 1959, sailed for Ghana on 31 Oct. 1959, and were officially transferred from the Royal Navy to the Ghana Navy at Takoradi at the end of Nov. 1959 and renamed after hills in Ghana. They are now painted with grey hull and white upper works. A photograph of Yogaga appears in the 1962-63 and 1963-64 editions.

SEAWARD DEFENCE BOATS



KOMENDA 1963, Ghana Navy, Official

2 "Ford" Class

ELMINA P 13

KOMENDA P 14

- Displacement: 120 tons standard (160 tons full load)
Dimensions: 110 (pp.), 117½ (o.a.)×20½×5 feet
Guns: 1—40 mm., 60 cal. Bofors AA.
A/S weapons: Depth charge throwers
Machinery: 2 Davey Paxman diesels on outer shafts. B.H.P.: 1,000
=18 kts, 1 Foden diesel on centre shaft. B.H.P.: 100
Complement: 19

General

Built for Ghana by Yarrow & Co. Ltd., Scotstoun, Glasgow. Both laid down on 18 Oct. 1961. Komenda was launched on 17 May 1962 and commissioned on 1 Nov. 1962. Elmina was commissioned on 29 Nov. 1962. Fitted with roll damping fins.

MAINTENANCE REPAIR CRAFT

ASUANTSI (ex-MRC 1122)

General

Acquired from Britain in 1965 and arrived in Ghana waters in July.

ROYAL HELLENIC NAVY

Administration

Chief of Naval Staff:
Vice-Admiral Spyridon Avgeris, R.H.N.

Naval Attaché in London:
Captain Spyridon Mourikis, R.H.N.

Naval Attaché in Washington:
Captain George C. Moralis, R.H.N.

Personnel

1965: 18,000 (1,800 officers and 16,200 ratings)
(conscript, 18 months or enlistment)

Mercantile Marine

Lloyd's Register of Shipping:
1,290 vessels of 6,887,624 tons gross

Silhouettes

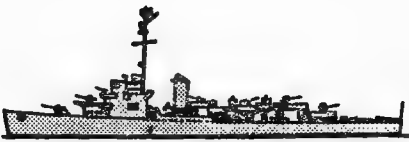
Scale: 150 ft.=1 inch



NAVARINON, THYELLA



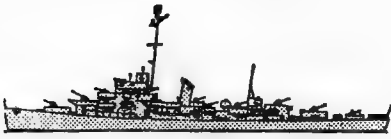
DOXA, NIKI



AETOS



ASPIS, LONCHI, SFENDONI, VELOS



LEON, IERAX, PANTHIR



PIRPOLITIS

DESTROYERS

6 Ex-U.S. DD Type
"Fletcher" Class

- ASPIS (ex-U.S.S. Conner, DD 582)
LONCHI (ex-U.S.S. Hall, DD 583)
NAVARINON (ex-U.S.S. Brown, DD 546)
SFENDONI (ex-U.S.S. Aulick, DD 569)
THYELLA (ex-U.S.S. Bradford, DD 545)
VELOS ex-U.S.S. Charette, DD 581)
- Displacement: 2,100 tons standard (3,050 tons full load)
Dimensions: 376½ (o.a.) × 39½ × 12½ (mean), 18 (max.) feet
Guns: Aspís, Lonchi, Sfendoni, Velos: 4—5 inch, 38 cal. d.p.; 6—3 inch, 50 cal. AA. (three twin)
Navarinon, Thyella: 5—5 inch, 38 cal. d.p.; 10—40 mm. AA. (2 quadruple, 1 twin)
Tubes: Aspís, Lonchi, Sfendoni, Velos: 5—21 inch (quintuple bank)
Navarinon, Thyella: None
A/S weapons: Hedgehogs, side launching torpedo racks, depth charges
Machinery: 2 sets General Electric geared turbines. 2 shafts. S.H.P.: 60,000 =35 kts.
Boilers: 4 Babcock & Wilcox
Oil fuel: 650 tons
Radius: 6,000 miles at 15 kts.
Complement: 300

General
Former United States destroyers of the "Fletcher" class, transferred from the U.S.A. to Greece under the Mutual Defense Assistance Program, Aspís, Lonchi and Velos at Long Beach, California, on 15 Sep. 1959, 9 Feb. 1960 and 15 June 1959, respectively. Sfendoni at Philadelphia on 21 Aug. 1959, and Navarinon and Thyella at Seattle, Washington, on 27 Sep. 1962. Aspís means Shield.

Name	Laid down:	Launched	Completed
Aspís	16 Apr. 1942	18 July 1942	8 June 1943
Lonchi	16 Apr. 1942	18 July 1942	6 July 1943
Navarinon	27 June 1942	22 Feb. 1943	10 July 1943
Sfendoni	14 May 1941	2 Mar. 1942	27 Oct. 1942
Thyella	28 Apr. 1942	12 Dec. 1942	12 June 1943
Velos	20 Feb. 1941	3 June 1942	18 May 1943

Name	Pennant No.	Builders
Aspís	D 06	Boston Navy Yard
Lonchi	D 56	Boston Navy Yard
Navarinon	D 63	Bethlehem (S. Pedro)
Sfendoni	D 85	Consolidated Steel Corp., Texas
Thyella	D 28	Bethlehem (S. Pedro)
Velos	D 16	Boston Navy Yard

Recent Disposal of Cruiser
The light cruiser Elli, formerly the Italian Eugenio di Savoia, was relegated to reserve and officially deleted from the list in 1964 (see full particulars, photograph, plan and elevation drawing, and silhouette sketch in the 1963-64 and earlier editions).



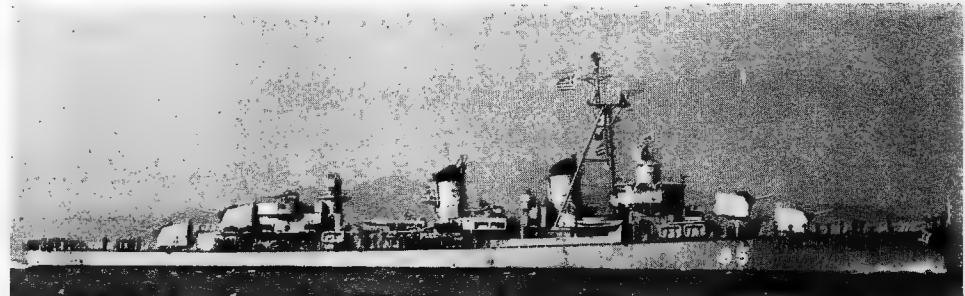
THYELLA (five 5-inch guns)

1963, Royal Hellenic Navy, Official



ASPIS (four 5-inch guns)

1961, A. & J. Pavla



SFENDONI

1960, Royal Hellenic Navy, Official

Destroyers—continued

2 Ex-U.S. DD Type
"Gleaves" Class

DOXA (ex-U.S.S. Ludlow)	NIKI (ex-U.S.S. Eberle)
Names:	Doxa Niki
Pennant No.:	20 65
NATO No.:	D 220 D 225
Builders:	Bath Iron Works Corpn. Bath Iron Works Corpn.
Laid down:	18 Dec. 1939 12 Apr. 1939
Launched:	11 Nov. 1940 14 Sep. 1940
Completed:	5 Mar. 1941 4 Dec. 1940
Displacement:	1,630 tons standard (2,572 tons full load)
Dimensions:	348½ (o.a.) × 36 × 18 (max.) feet
Guns:	4—5 inch, 38 cal., 12—40 mm. (2 quadruple, 2 twin), see Gunnery notes
Torpedo tubes:	Removed
A/S weapons:	Hedgehogs, side launching torpedo racks, depth charges
Machinery:	General Electric geared turbines. 2 shafts. S.H.P.: 50,000=34.5 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	600 tons
Radius:	5,000 miles at 15 kts.
Complement:	250 (war), 188 peace

General
Taken over from the United States Navy on 18 Apr. 1951. Formerly DD 438 and DD 430, respectively, of the "Gleaves" class destroyers. As modernised, now have tripod foremast. For former appearance see photograph of Niki in the 1956-57 to 1964-65 editions.

Nomenclature
Names mean "Glory" and "Victory", respectively.

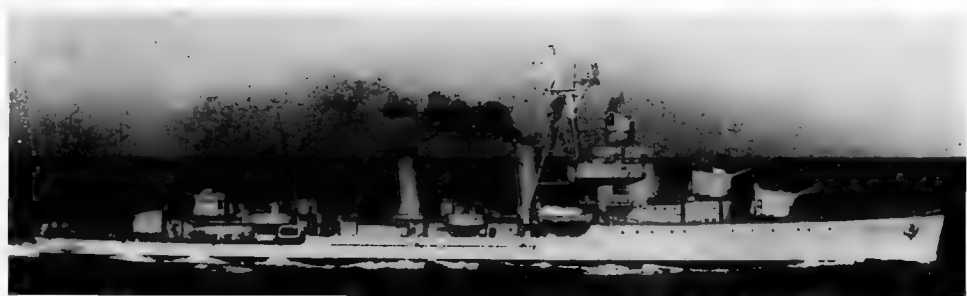
Gunnery
The six 20 mm. AA. guns were removed in 1962.

Torpedo Tubes
The 5—21 inch torpedo tubes originally mounted in a quintuple bank were removed.



DOXA

1965, Royal Hellenic Navy, Official



DOXA

1964, Royal Hellenic Navy, Official

FRIGATES (Destroyer Escorts)

4 Ex-U.S. DE Type
"Bostwick" Class

AETOS (ex-U.S.S. Slater, DE 766)
IERAX (ex-U.S.S. Elbert, DE 768)
LEON (ex-U.S.S. Eldridge, DE 173)
PANTHIR (ex-U.S.S. Garfield Thomas, DE 193)

Displacement:	1,240 tons standard (1,900 tons full load)
Dimensions:	306 (o.a.) × 36 × 12 (max.) feet
Guns:	3—3 inch, 50 cal. d.p., 6—40 mm. (3 twin) 14—20 mm. AA. (7 twin)
A/S weapons:	Hedgehog, side launching torpedo racks; 8 D.C.T., 1 D.C. rack
Machinery:	Diesel-electric. 2 shafts. B.H.P.: 6,000=20 kts.
Oil fuel:	300 tons
Radius:	11,500 miles at 11 kts.
Complement:	220 (war)

General
Former American destroyer escorts of the "Bostwick" class. Their 3—21 inch torpedo tubes (triple mount) were removed. Transferred from U.S.A. in 1951 under the Mutual Defense Assistance Program. Meanings of names are Eagle, Falcon, Lion and Panther, respectively. Aetos and Ierax were transferred on 15 Mar. 1951, Leon and Panther on 15 Jan. 1951. Re-named after the late destroyer flotilla in the Royal Hellenic Navy bearing these names.

Photographs
A photograph of Aetos appears in the 1959-60 edition, and of Ierax in the 1960-61 to 1964-65 editions.

Name	Laid down	Launched	Completed
Aetos	9 Mar. 1943	13 Feb. 1944	1 May 1944
Ierax	1 Apr. 1943	23 May 1944	12 July 1944
Leon	22 Feb. 1943	25 June 1943	27 Aug. 1943
Panther	23 Sep. 1943	12 Dec. 1943	24 Jan. 1944

Pennant No.	NATO No.	Name	Builders
01	D 212	Aetos	Tampa S.B. Co.
31	D 213	Ierax	Tampa S.B. Co.
54	D 217	Leon	Federal S.B. & DD. Co.
67	D 227	Panther	Federal S.B. & DD. Co.

Recent Disposals of "Flower" Class
The two "Flower" class corvettes or frigates on loan from Great Britain, Apostolis and Tomlaziis, were returned to the Royal Navy, and sold.

Disposals of "Hunt" Classes
Of the ex-British "Hunt" Type III frigates (escort destroyers), Adrias (ex-Border), was scrapped owing to heavy damage when a mine blew away her fo'c's'le on 22 Oct. 1943; Kanaris (ex-Hatherleigh) and Pindos (ex-Bolebroke) were returned to Great Britain on 12 Dec.



PANTHIR

1965, A. & J. Pavla



LEON

1962, A. & J. Pavla

1959 and sold for scrap in Greece; Miaoullis (ex-Modbury) was also returned and similarly disposed of in 1960; and Adrios (ex-Tanatside) and Astings (ex-Catlerick) were removed from the effective list in 1963 and sold by the British Admiralty.

All three of the ex-British "Hunt" Type II frigates (escort destroyers), Aegaion (ex-Lauderdale), Kriti (ex-Hursley) and Themistocles (ex-Bramham) were returned to Great Britain on 12 Dec. 1959 and sold for scrap in Greece.

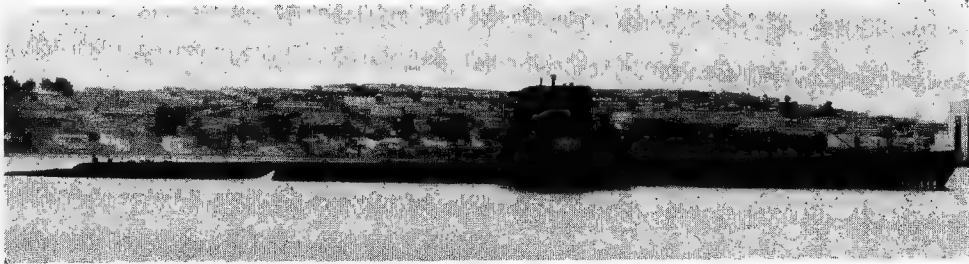
SUBMARINES

1 Ex-U.S. "Balao" Class

TRIAINA (ex-U.S.S. Scabbardfish, SS 397)

Builders: Portsmouth Navy Yard
Launched: 27 Jan. 1944
Completed: 29 Apr. 1944
Displacement: 1,526 tons standard, 1,816 tons surface (2,425 tons submerged)
Dimensions: 311½ (o.a.)×27×17 feet
Tubes: 10—21 inch (6 bow, 4 stern).
Machinery: Diesels, B.H.P.: 6,500=20 kts. (surface). Electric motors, H.P.: 4,610=10 kts. (submerged)
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 80

General
Transferred on 26 Feb. 1965 at San Francisco (loaned by U.S. in 1964 under MAP). Pennant No. S 86.



TRIAINA

1965, Royal Hellenic Navy, Official

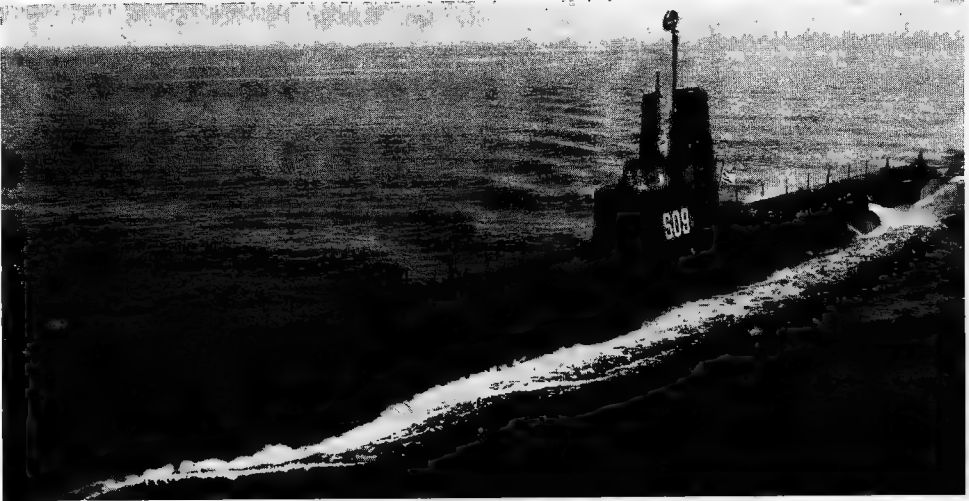
2 Ex-U.S. "Gato" Class

AMFITRITI (ex-Jack)

POSEIDON (ex-Lapon)

Name:	Amfitriti	Poseldan
Pennant No.:	S 78 (ex-Y 17)	S 09 (ex-Y 16)
Builders:	Electric Boat Div., Gen. Dynamics Corp.	Electric Boat Div., Gen. Dynamics Corp.
Laid down:	2 Feb. 1942	21 Feb. 1942
Launched:	16 Oct. 1942	27 Oct. 1942
Completed:	6 Jan. 1943	23 Jan. 1943
Displacement:	1,525 tons standard, 1,816 tons surface (2,425 tons submerged)	
Dimensions:	311½×27×17 feet	
Guns:	1—5 inch, 25 cal. d.p.	
Tubes:	10—21 inch (6 bow, 4 stern)	
Machinery:	G.M. 2-stroke diesels; B.H.P.: 6,500=21 kts. (surface). Electric motors, H.P.: 2,750=10 kts. (submerged)	
Complement:	85	

General
Both loaned from the United States in 1957 under the Military Aid Programme. Have two engine rooms instead of one to reduce the size of the compartments. Lapon was transferred on 8 Aug. 1957 and Jack on 21 Apr. 1958. A photograph of Amfitriti appears in the 1959-60- to 1964-65 editions.



POSEIDON

1964, Royal Hellenic Navy, Official

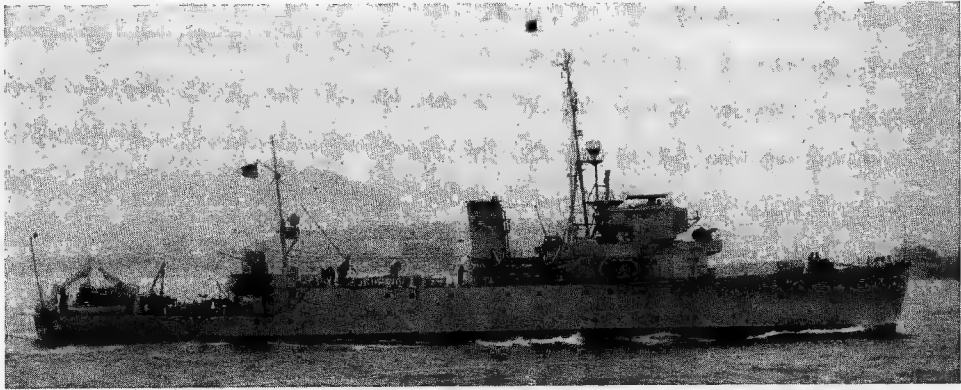
ESCORT MINESWEEPERS (Corvettes)

5 Ex-British "Algerine" Type Ocean Minesweepers (Officially classed as Corvettes)

Displacement: 1,030 tons standard (1,325 tons full load)
Dimensions: 225 (o.a.)×35½×11½ (max.) feet
Guns: 2—3 inch (U.S. Mk. 21), 4—20 mm. AA. (U.S.), 2 Colt-Browning M.G. (except Piro-politis, only one 3-inch, and Mahitis, no guns)
A/S weapons: 4 D.C.T.
Machinery: Triple expansion, 2 shafts. I.H.P.: 2,000=16.5 kts.
Boilers: 2, of 3-drum type
Oil fuel: 270 tons
Radius: 5,000 miles at 10 kts.
Complement: 85

General
Formerly ocean minesweepers of the "Algerine" class in the Royal Navy. Acquired from the Executive Committee of Surplus Allied Material. Formerly employed as corvettes. The armament of Mahitis was removed when she became a training ship. Armatolos, Mahitis and Navmachos were used for auxiliary purposes. All now used as personnel transports.

Name	Pennant No.	Builders	Launched
ARMATOLOS (ex-H.M.S. Arles)	M 12	Toronto Shipyard	19 Sep. 1942
MAHITIS (ex-H.M.S. Postillion)	M 58	Redfern Construction Co.	14 Nov. 1942
NAVMACHOS (ex-H.M.S. Lightfoot)	M 64	Redfern Construction Co.	31 Aug. 1942
PIRPOLITIS (ex-H.M.S. Arcturus)	M 76	Redfern Construction Co.	27 Jan. 1943
POLEMISTIS (ex-H.M.S. Gozo)	M 74	Redfern Construction Co.	18 Mar. 1943



PIRPOLITIS

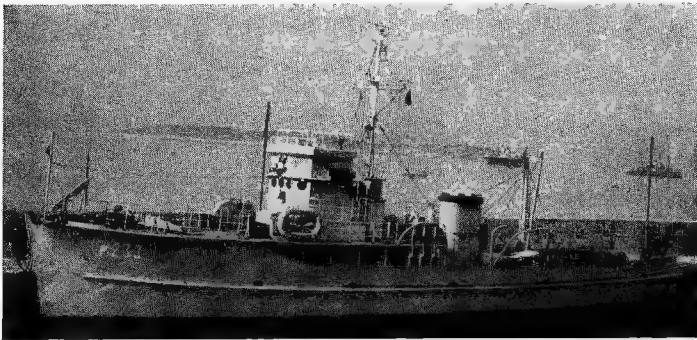
1962, Captain Aldo Fraccaroli

COASTAL PATROL VESSELS

6 BYMS Type Ex-Coastal Minesweepers

ANDROMEDA (ex-BYMS 2261)	PIGASSOS (ex-BYMS 2221)
CLIO (ex-BYMS 2152)	PROKYON (ex-BYMS 2076)
LAMBADIAS (ex-BYMS 2182)	THALIA (ex-BYMS 2252)
Displacement:	251 tons standard (338 tons full load)
Dimensions:	136×24½×8½ (max.) feet
Guns:	1—20 mm. Oerlikon AA.
Machinery:	2 G.M. diesels, 2 shafts. B.H.P.: 1,000=15 kts.
Oil fuel:	16 tons
Radius:	5,500 miles at economical speed
Complement:	30

General
Former United States coastal minesweepers of the BYMS type acquired in 1959. Of wooden hull construction.
Recent Disposals
Sister ship Aura (ex-BYMS 2054) was officially deleted from the list in 1962. The eight seaward defence boats of the HDML type, Bizani (ex-HDML 1221), Davila (ex-HDML 1032), Distratlon (ex-HDML 1242), Farsala (ex-HDML 1252), Karia (ex-HDML 1307), Kastraki (ex-HDML 1375), Kilssowra (ex-HDML 1149) and Portaria (ex-HDML 1051), all on loan from Great Britain, were deleted from the list in 1962.



ANDROMEDA

1962, Royal Hellenic Navy, Official

PATROL VESSELS (Gunboats)



ANTIPLOIARKHOS PEZOPOULOS

1964, R.H.N. Official

5 Ex-U.S. PGM Type

ANTIPLOIARKHOS LASKOS (ex-PGM 16, ex-PC 1148) P 53
 ANTIPLOIARKHOS PEZOPOULOS (ex-PGM 21, ex-PC 1552) P 70
 PLOIARKHOS MELETOPOULOS (ex-PGM 22, ex-PC 1553) P 57
 PLOTARKHIS ARSLANOGLU (ex-PGM 25, ex-PC 1556) P 14
 PLOTARKHIS CHANTZIKONSTANDIS (ex-PGM 29, ex-PC 1565) P 96

Displacement: 335 tons standard (439 tons full load)
 Dimensions: 170 (w.l.), 173½ (o.a.) × 23 × 7½, 10½ (max.) feet
 Guns: 1—3 inch, 6—20 mm. AA. (see Gunnery notes)
 A/S weapons: Hedgehog, side launching torpedo racks, depth charges
 Machinery: 2 G.M. 2 str. diesels, 2 shafts. B.H.P.: 3,600=19 kts.
 Oil fuel: 60 tons

General

All launched in 1943-44. Presented from the United States Navy in Aug. 1947. Rated as gunboats.

Gunnery

The two 40 mm. AA. guns were removed from the remaining five vessels and a hedgehog was installed in each in 1963.

Recent Disposals

Sister ship Plotarkhis Blassos (ex-PGM 28, ex-PC 1559). P 61, was removed from the effective list in 1963 and sold.

Vassilefs Georgios II (ex-PC 622), P 17, was also removed from the effective list in 1963 and sold.



PLOTARKHIS VLACHAVAS

1963, Royal Hellenic Navy. Official

2 Ex-U.S. LSSL Type

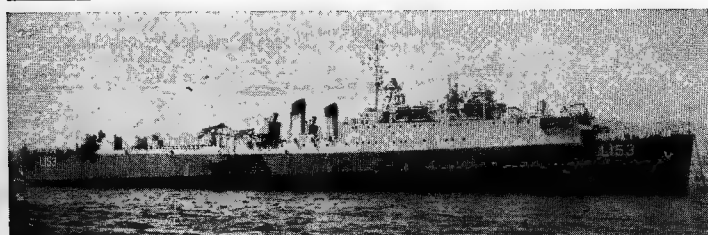
Name	Launched	Pennant No.
PLOTARKHIS MARIDAKIS (ex-U.S.S. LSSL 65)	14 Nov. 1944	P 94
PLOTARKHIS VLACHAVAS (ex-U.S.S. LSSL 35)	17 Sep. 1944	P 95

Displacement: 257 tons standard (395 tons full load)
 Dimensions: 157 × 23½ × 5½ feet
 Guns: 1—3 inch, 4—40 mm. AA. (2 twins), 4—20 mm. AA., 6—0.5 inch AA. M.G.
 Machinery: Diesel, 2 shafts. B.H.P.: 1,600=14.4 kts.
 Oil fuel: 87 tons

General

Former American Landing Ships Support, Large. Built by Albina Engine & Machinery Works Inc., Portland, Oreg., and Commercial Iron Works, Portland, Oreg., respectively. Launch dates above. Plotarkhis Vlachavas was transferred from the United States on 12 Aug. 1957 under the Military Aid Program and Plotarkhis Maridakis in June 1958. Employed as patrol vessels and gunboats. A photograph of Plotarkhis Maridakis appears in the 1959-60 to 1962-63 editions.

DOCK LANDING SHIP



NAFKRATOUSSA

1963, Royal Hellenic Navy. Official

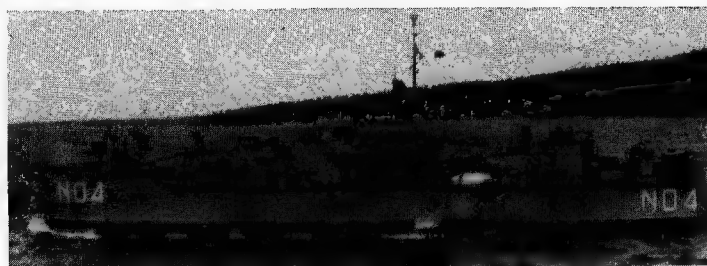
1 Ex-U.S. LSD Type

NAFKRATOUSSA (ex-Hyperion, ex-LSD 9)
 Displacement: 4,790 tons standard (9,375 tons full load)
 Dimensions: 454 (w.l.), 457½ (o.a.) × 72½ × 18 (max.) feet
 Guns: 1—3 inch, 8—40 mm. AA.
 Machinery: Geared turbines, 2 shafts. S.H.P.: 7,000=15 kts.

General

Launched by Newport News Shipbuilding & Dry Dock Co. on 21 May 1943. Taken over by Royal Hellenic Navy in 1953. Headquarters ship of Captain Landing Forces.

MINELAYERS



AKTION

1965, Royal Hellenic Navy, Official

2 Ex-U.S. LSM Type

AKTION (ex-LSM 301) N 04

AMVRAKIA (ex-LSM 303) N 05

Displacement: 720 tons standard (1,100 tons full load)
 Dimensions: 196½ (w.l.), 203½ (o.a.) × 34½ × 7½ (8½ max.) feet
 Guns: 8—40 mm. d.p. (4 twin), 6—20 mm. AA. (single)
 Mines: Capacity 100 to 130
 Machinery: 2 diesels, 2 shafts. B.H.P.: 3,600=12.5 kts.
 Radius: 3,000 miles at 12 kts.
 Complement: 65

General

Former United States Landing Ships Medium. Both built at Charleston Naval Shipyard. Aktion was launched on 1 Jan. 1945 and Amvrakia on 14 Nov. 1944. Converted in the U.S.A. into all purpose seagoing minelayers for the Royal Hellenic Navy under the Mutual Defense Assistance Program. Underwent extensive rebuilding from the deck up. Twin rudders. The Greek flag was hoisted on 1 Dec. 1953. Pennant Nos. above.

A photograph of Amvrakia appears in the 1959-60 to 1964-65 editions.

COASTAL MINESWEEPERS

6 New Construction

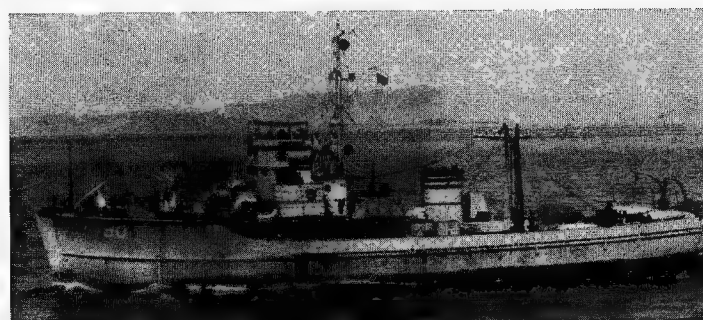
AIDON (ex-MSC 310) M 248
 AIGLI (ex-MSC 299) M 246
 DAPHNI (ex-MSC 307) M 247

DORIS (ex-MSC 298) M 245
 KICHLI (ex-MSC 308) M 241
 KISSA (ex-MSC 309) M 242

Displacement: 320 tons light (370 tons full load)
 Dimensions: 138 (pp.), 144 (o.a.) × 28 × 8½ feet
 Guns: 2—20 mm. AA.
 Machinery: 2 General Motors diesels, 2 shafts. B.H.P.: 880=13 kts.
 Oil fuel: 25 tons
 Radius: 2,500 miles at 10 kts.
 Complement: 39

General

Built in the U.S.A. under the Military Aid Programme for Greece. Completed and transferred in 1964-65. Largely of wooden construction, being built throughout of materials with the lowest possible magnetic attraction to obtain the greatest possible safety factor when sweeping for magnetic mines.



LEROS

1963, Royal Hellenic Navy, Official

14 BYMS Type

AFROESSA (ex-BYMS 2185)	M 209 LEROS (ex-BYMS 2186)	M 210
ITHAKI (ex-BYMS 2240)	M 214 PARALOS (ex-BYMS 2066)	M 204
KALYMNOS (ex-BYMS 2033)	M 201 PATMOS (ex-BYMS 2229)	M 213
KARTERIA (ex-BYMS 2065)	M 203 PAXI (ex-BYMS 2056)	M 202
KEFALINIA (ex-BYMS 2171)	M 207 SALAMINIA (ex-BYMS 2067)	M 205
KERKYRA (ex-BYMS 2172)	M 208 SIMI (ex-BYMS 2190)	M 211
LEFKAS (ex-BYMS 2086)	M 206 ZAKYNTHOS (ex-BYMS 2209)	M 212

Displacement: 270 tons standard (350 tons full load)
 Dimensions: 136 × 24½ × 8 feet
 Guns: 1—3 inch, 2—20 mm. AA., 4 M.G., 2 D.C.T.
 Machinery: Diesel. B.H.P.: 1,000=12 kts.
 Complement: 33

General

Of wooden construction. All the names are conventional and are not mentioned in signals or correspondence. Known by numbers, Karteria was launched on 21 Dec. 1942. Vegas (ex-BYMS 2078), has been adapted as a hydrographic ship, see below. A photograph of Paralos appears in the 1955-56 to 1962-63 editions.

SURVEY SHIPS

2 BYMS Type Ex-Coastal Minesweepers

ARIADNE (ex-BYMS 2058)	252 tons standard (325 tons full load)	VEGAS (ex-BYMS 2078)
Displacement:	136 × 24½ × 6 feet	
Dimensions:	Diesel. B.H.P.: 1,000=12 kts.	
Machinery:		

General

Former coastal minesweepers of the wooden hulled BYMS type, see sister ships above. The survey ship Alkyoni was discarded in 1961.

TANK LANDING SHIPS



PINIOS

1959, Royal Hellenic Navy, Official

2 British LST (3) Type

ALIAKMON L 104 (ex-LST 3002)

PINIOS L 171 (ex-LST 3506)

Displacement: 2,256 tons standard (4,980 tons full load)
 Dimensions: 330 (w.l.), 347 (o.a.) \times 55 \times 14½ (max.) feet
 Guns: 10—20 mm. AA.
 Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=13 kts.
 Oil fuel: 1,950 tons

General

Original LST (3) type landing ships. Launched in 1943. On loan from Great Britain. *Alfios* (ex-LST 3020), *Axios* (ex-LST 3007) and *Strymon* (ex-LST 3502) were returned to the Royal Navy, refitted at Malta and taken over by the Ministry of Transport. *Acheloos* (ex-LST 3503) is being replaced in 1964 by an LST of the *Ikaria* type.



IKIARA

1961, Royal Hellenic Navy, Official

4 Ex-U.S. LST Type

IKARIA L 154 (ex-U.S.S. Potter County, LST 1086)

LESBOS L 172 (ex-U.S.S. Boone County, LST 389)

RODOS L 157 (ex-U.S.S. Bowman County, LST 391)

SYROS L 144 (ex-U.S.S. LST 325)

Displacement: 1,653 tons standard (4,080 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.) \times 50 \times 14 (max.) feet
 Guns: 8—40 mm. AA., 6—20 mm. AA. (Rodas: 10—40 mm.)
 Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,700=11½ kts.
 Cargo Capacity: 2,100 tons
 Complement: 119 (accommodation for 266)

General

Former United States tank landing ships. *Ikaria*, *Lesbos* and *Rodos* were transferred to the Royal Hellenic Navy on 9 Aug. 1960. *Syros* was transferred on 29 May 1964 at Portsmouth, Virginia, under MAP.

3 U.S. LST (2) Type

CHIOS L 195 (ex-LST 35) LIMNOS L 158 (ex-LST 36) SAMOS L 179 (ex-LST 33)

Displacement: 1,625 tons standard (4,080 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.) \times 50 \times 14 (max.) feet
 Guns: 1—3 inch, 6—20 mm. AA.
 Machinery: Diesel, 2 shafts. B.H.P.: 1,700=11 kts.
 Oil fuel: 595 tons
 Complement: 119

General

All launched in 1943. Acquired from the U.S. Navy in 1943, on Lend-lease terms. *Lesvos* (ex-LST 322) was returned to the British Government in 1953. A photograph of *Chios* appears in the 1952-53 to 1960-61 editions.

MEDIUM LANDING SHIPS



IPOPLIARKHOS CRYSTALIDIS

1961, Royal Hellenic Navy, Official

6 Ex-U.S. LSM Type

IPOPLIARKHOS CRYSTALIDIS L 165 (ex-U.S.S. LSM 541)

IPOPLIARKHOS DANILOLOS L 163 (ex-U.S.S. LSM 227)

IPOPLIARKHOS GRIGORPOULOS L 161 (ex-U.S.S. LSM 45)

IPOPLIARKHOS MERLIN L 166 (ex-U.S.S. LSM 557)

IPOPLIARKHOS ROUSSEN L 164 (ex-U.S.S. LSM 399)

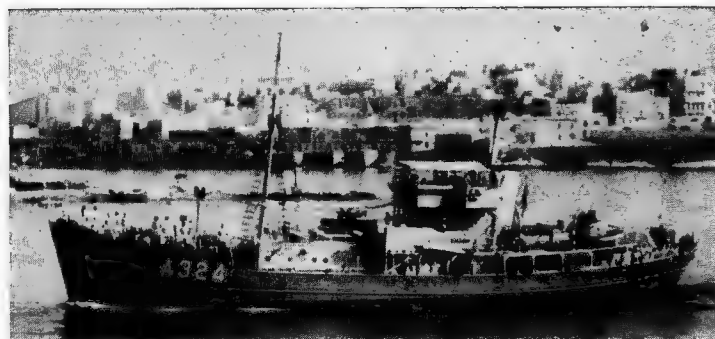
IPOPLIARKHOS TOURNAS L 162 (ex-U.S.S. LSM 102)

Displacement: 743 tons (beaching), (1,095 tons full load)
 Dimensions: 196½ (w.l.), 203½ (o.a.) \times 34½ \times 8½ feet
 Guns: 2—40 mm. AA., 8—20 mm. AA.
 Machinery: Diesel direct drive, 2 shafts. B.H.P.: 3,600=13 kts.

General

Former United States Medium Landing Ships of the LSM type. *LSM 541* and *LSM 557* were handed over to the Royal Hellenic Navy at Salamis on 30 Oct. 1958. *LSM 45*, *LSM 102*, *LSM 227* and *LSM 399* were transferred to Greece at Portsmouth, Virginia on 3 Nov. 1958. All were renamed after naval heroes killed during the Second World War.

MINESWEEPER DEPOT SHIP



HERMES

1963, A. & J. Pavla

HERMES (ex-Product, ex-Port Jackson)

Displacement: 550 tons standard (650 tons full load)
 Dimensions: 133 \times 27½ \times 11 feet
 Machinery: Diesel, 4-stroke. B.H.P.: 560=11 kts.

General

Former British trawler. Launched in 1941. On loan from Great Britain. Pennant No. A 324.

REPAIR SHIP



SAKIPIS

1962, Royal Hellenic Navy, Official

SAKIPIS (ex-K.N.M. Ellida, ex-U.S.S. ARB 13, ex-U.S.S. LST 50)

Displacement: 3,800 tons standard (5,000 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.) \times 50 \times 14 approx. (max.) feet
 Guns: 12—40 mm. AA., 12—20 mm. AA.
 Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,800=10 kts. sea speed
 Complement: 200

General

Former United States tank landing ship. Built by Dravo Corporation, Pittsburgh. Laid down on 29 Aug. 1943, launched on 16 Oct. 1943, completed on 27 Nov. 1943, and first commissioned in 1943. Converted to a battle damage repair ship of the ARB 1 class in 1952 by Puget Sound Bridge & Dredger Co. Taken over by the Royal Norwegian Navy at Seattle on 14 Nov. 1952 under the Mutual Defense Assistance Program to serve as a battle damage repair ship for Norwegian naval surface vessels and craft. Returned to the U.S. Navy on 1 July 1960. Acquired by Greece from the U.S.A. on 16 Sep. 1960, having been transferred to the Royal Hellenic Navy at Bergen, Norway, on that date. Pennant No. A 329.

Recent Disposal

The old repair ship *Hephaistos* (ex-*Khios*, ex-*Marie Reppel*) was removed from the effective list and will be sold, it was officially stated in 1963.

LANDING CRAFT

8 Ex-U.S. LCU Type

LCU 763

LCU 827

LCU 971

LCU 1379

LCU 766

LCU 852

LCU 1229

LCU 1382

Displacement: 143 tons standard (309 tons full load)
 Dimensions: 105 (w.l.), 119 (o.a.) \times 32½ \times 5 (max.) feet
 Guns: 2—20 mm. Oerlikon AA.
 Machinery: Diesel, 3 shafts. B.H.P.: 440=8 kts.
 Complement: 13

General

Former United States Utility Landing Craft of the LCU (ex-LST (6)) type. *Sciathos* and *Scopelos* were acquired in 1959. *Kea*, *Kitnos* and *Sifnos* were transferred from the United States in 1961, and three more in 1962. It is officially stated that these LCUs are referred to by their hull numbers and not by names.

Minor Landing Craft

There are also 12 LCMs and 24 LCVPs, all transferred from the United States under the Military Aid Program.

Recent Disposals

It is officially stated that all eight tank landing craft of the LCT type have been removed from the effective list and are being sold in 1963.

The nine Assault Landing Craft, *LCA 1123*, *1352*, *1525*, *1618*, *1725*, *1726*, *1775*, *1818* and *1886* on loan from Great Britain from 1950 to 1959, were returned or otherwise disposed of.

AIR-SEA RESCUE BOATS

ADAMIDIS A/N 705 (ex-AVR 705)

IOS A/N 1084 (ex-AVR 1084)

IRA A/N 709 (ex-AVR 709)

KARNAVIAS A/N 707 (ex-AVR 707)

SAKELLARIOU A/N 708 (ex-AVR 708)

Displacement: 24 tons
 Dimensions: 63 \times 15 \times 3½ feet
 Machinery: 2 Hall Scott motors. B.H.P.: 1,260=33 kts.

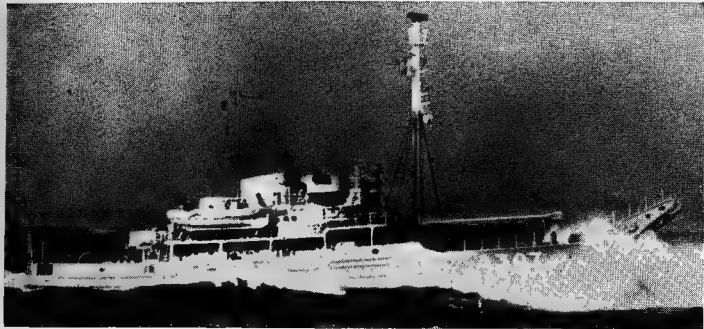
General

These boats may be discarded in the near future it is officially stated.

Recent Disposals of Motor Launches

Of the eight Fairmile "B" type motor launches, *Doxaton* (ex-*ML 307*), *Drama* (ex-*ML 341*), *Elephtheron* (ex-*Kalini*, ex-*ML 478*), *Chalkis* (ex-*ML 578*), *Keper-nissi* (ex-*ML 867*) and *Tsataltra* (ex-*ML 861*) were returned to Great Britain in 1960 and scrapped or sold, and *Kalambaka* (ex-*ML 483*) and *Nissiros* (ex-*ML 864*) were placed in reserve and officially deleted from the list in 1964.

BOOM DEFENCE VESSEL



THETIS 1961, Royal Hellenic Navy, Official

THETIS
Displacement: 680 tons standard (805 tons full load)
Dimensions: 146 (w.l.), 169; (o.a.)×33;×11½ (max.) feet
Guns: 1—40 mm. AA., 4—20 mm. AA.
Machinery: M.A.N. diesel motors, 1 shaft. B.H.P.: 1,400=12 kts.
Complement: 48

General
Netlayer of the U.S. AN type. Built by Kröger, Rendsburg, as a U.S. offshore order. Launched in 1959. Taken over by the Royal Hellenic Navy Transferred on 9 Apr. 1960. Ex-U.S.S. No. AN 103. Pennant No. A 307.

OCEAN SALVAGE VESSEL

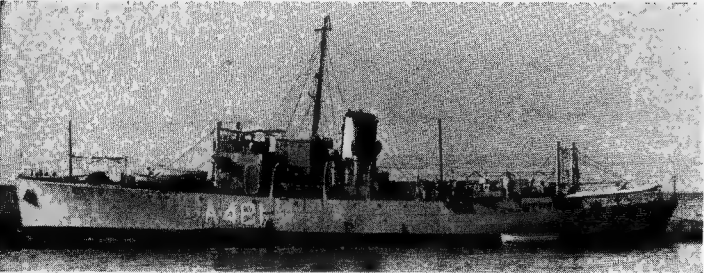


SOTIR A. & J. Pavla

SOTIR (ex-Salventure)
Displacement: 1,440 tons standard (1,700 tons full load)
Measurement: 1,112 tons gross
Dimensions: 216 (o.a.)×37½×13 (max.) feet
Machinery: Triple expansion. 2 shafts. I.H.P.: 1,500=12 kts.
Oil fuel: 310 tons,
Complement: 60

General
Former British Royal Fleet Auxiliary ocean salvage vessel of the "Saly" class. On loan from Great Britain. Equipped with a decompression chamber. Pennant No. A 384.

LIGHTHOUSE TENDERS



ST. LYKOUDIS 1962, Captain Aldo Fraccaroli

ST. LYKOUDIS (ex-Chania)
Displacement: 1,020 tons standard (1,280 tons full load)
Dimensions: 190 (pp.), 205 (o.a.)×33×14½ feet
Machinery: Triple expansion. I.H.P.: 2,750=14 kts.
Boilers: 2 S.E.
Oil fuel: 230 tons

General
Former corvette of the British "Flower" type. Launched in 1960. Pennant No: A 481.

SKYROS	SERRAI (ex-Anna Raeder)
Displacement: 350 tons	Displacement: 725 tons
Pennant No.: A 485	Pennant No.: A 487

WATER CARRIERS

ILIKI	KASTORIA
Capacity: 120 tons	Capacity: 520 tons
VOLVI	TRIHONIS
Capacity: 350 tons	Capacity: 300 tons
KALIROE	STYMPHALIA
Capacity: 120 tons	

Disposals of Transports
The transports *Anchialos* (ex-FT 28, ex-APC 65), *Distoman* (ex-FT 15, ex-APC 66) and *Elasson* (ex-FT 12, ex-APC 67) were removed from the effective list in 1963 and put up for sale; and *Kalavrita* (ex-FT 13, ex-APC 71), *Lehoven* (ex-FT 24, ex-APC 73) and *Velestinon* (ex-FT 11,ex-APC 75) were officially deleted from the list in 1964.

OILERS



ARETHOUSA 1960, Royal Hellenic Navy, Official

ARETHOUSA (ex-U.S.S. *Natchaug*, AOG 54)
Displacement: 1,850 tons light (4,335 tons full load)
Measurement: 2,575 deadweight (cargo capacity 2,040 tons)
Dimensions: 292 (w.l.), 310½ (o.a.)×48½×15½ (max.) feet
Guns: 4—3 inch d.p., 50 cal.
Machinery: General Motors diesels. 2 shafts. B.H.P.: 3,300=14 kts.
Complement: 43 (6 officers, 37 men)

General
Former United States petrol carrier of the AOG type. Built by Cargill Inc., Savage, Minn. Laid down on 15 Aug. 1944. Launched on 6 Dec. 1944. Transferred from the U.S.A. to Greece under the Mutual Defense Assistance Program at Pearl Harbour, Hawaii, in July 1959. Pennant No. A 377.

Disposal
The old oiler *Argo* (ex-*Solna*, ex-*Granlund*, ex-*Corbis*, ex-*War Ranee*), originally of the British "War" class, was officially deleted from the list in 1962. ZEUS (ex-YOG 98)

Capacity:	900 tons
Dimensions:	165×35×10 feet

General
Former U.S. yard petrol carrier. Launched in 1944. Pennant No. A 372.

SIRIOS (ex-Poseidon, ex-Empire Faun)
Capacity: 850 tons

General
Formerly on loan from Great Britain, but purchased outright in 1962. This ship was renamed *Sirios* when the name *Poseidon* was given to the submarine *Lapon* acquired from the U.S.A. in 1958 (see earlier page). Pennant No. A 345.

VIVIIS

Capacity:	687 tons
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General
Originally a water carrier but now employed as an oiler. Pennant No. A 471.

PROMETHEUS

Capacity:	520 tons
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General
Small yard oil tanker. Launched in 1959. Pennant No. A 374.

KRONOS (ex-Islay, ex-Dresden)
Displacement 311 tons
Capacity: 110 tons

General
Pennant No. A 373. *Khalki* and *Xanthi* were officially stricken from the list in 1958.

ORION (ex-U.S. tanker Y 126)
Capacity: 700 tons

General
Former small United States yard tanker. Pennant No. A 376.

FLEET TUGS

ACCHILEUS (ex-Confident)	CYCLOPS (ex-F 10)	MINOTRAVROS
AEGEUS		(ex- <i>Theseus</i> , ex-ST 539)
AIAS	GIGAS	PERSEUS (ex-ST 772)
ANTAIOS (ex-Busy)	HERAKLIS	ROMAEOUS
ATLAS (ex-F 5)	KENTRAVROS	SAMSON (ex-F 16)
		TITAN

GABOON

PATROL BOAT



BOUET-WILLAUMEZ 1964, Gabonese Armed Forces, Official

BOUET-WILLAUMEZ (ex-VP 775, ex-VP 25, ex-HDML 1021)

Displacement:	40 tons standard (52 tons full load)
Dimensions:	72 (o.a.)×15½×6 feet
Guns:	2—20 mm. AA., 2 M.G.
Machinery:	2 diesels. 2 shafts. B.H.P.: 300=12 kts.

General
Former French *vedette de port*, ex-British harbour defence motor launch, transferred from the French Navy to Gaboon in 1961. Bears the name of the Admiral who signed the first Franco-Gabonese Treaty.

GUINEA

A small naval force of coastal and river craft is being established.

GUATEMALA

PATROL VESSEL



JOSÉ FRANCISCO BARRUNDIA 1959, Official

JOSÉ FRANCISCO BARRUNDIA (ex-Snapphanen)

Displacement: 310 tons standard (370 tons full load)
Dimensions: 170½×19½×9½ feet
Guns: 2—3 inch; 2—25 mm. AA.
Machinery: DeLaval geared turbines, 2 shafts. S.H.P.: 3,600=23 kts.
Boilers: 2 Vancon-Normand.
Oil fuel: 50 tons
Complement: 40

General
Built by Karlskrona Dockyard. Launched on 2 Nov. 1933. Former minesweeper in the Royal Swedish Navy until 1959 when she was transferred to the new Guatemalan Navy as the first warship. Now has lower mast (lattice), bridge and funnel (squat, thicker and streamlined) and shields on her 12-pounder guns. One of the 25 mm. Bofors was moved aft. She is painted a very light grey, nearly white. In 1964 she was reported to be inoperative.

Establishment
On 5th Jan. 1959 Guatemala announced the establishment of a navy, with the primary duty of routing poaching fishing boats and smugglers. In addition to the patrol vessel above there are four small patrol craft (ex-U.S. 40 ft. coastguard cutters). A 63 ft. aircraft rescue boat (AVR) was transferred from the U.S. to Guatemala on 8 Oct. 1964. Personnel: 85 officers and men.

HAITI

COAST GUARD PATROL VESSELS

DESSALINES (ex-U.S.N. *Tonawanda*, AN 89)
Displacement: 650 tons standard (785 tons full load)
Dimensions: 168½×33×10½ feet
Machinery: Busch-Sulzer diesel-electric. S.H.P.: 1,500=12 kts.

General
Former United States Navy netlayer of the "Cohoes" class. Built by Leatham D. Smith S.B. Co. Launched on 14 Nov. 1944. Loaned to Haiti in 1960 for five years. Pennant No. GC 10.

LA CRETE A PIERROT (ex-U.S.C.G. 95315) **VERTIERES**
Displacement: 100 tons
Dimensions: 95×19×5 feet
Guns: 1—40 mm. AA.
Machinery: 4 diesels, 2 shafts. B.H.P.: 2,200=21 kts.
Radius: 1,500 miles
Complement: 15

General
Former United States Coast Guard cutters, steel type. Built at U.S. Coast Guard Yard, Curtis Bay, Maryland. *La Crete a Pierrot* was acquired on 26 Feb. 1956. *Vertieres* was transferred to Haiti at Norfolk, Virginia, in Oct. 1956 and commissioned in Dec. 1956. Pennant Nos. GC 8 and GC 9, respectively.

AMIRAL KILICK (ex-U.S.C.G. *Black Rock*, WAGL 367)
Displacement: 160 tons
Dimensions: Length 114 feet

General
Former small buoy tender purchased from the United States Coast Guard in 1955, commissioned in Jan. 1956. Pennant No. GC 7. A photograph appears in the 1957-58 to 1963-64 editions.

16 AOUT 1946 (ex-SC 453)
Displacement: 110 tons standard (138 tons full load)
Dimensions: 110½×18½×6½ feet
Guns: 2—40 mm., 2—20 mm.
Machinery: Diesels, 2 shafts B.H.P.: 1,000=15 kts.

General
Pennant No. GC 2. Submarine chaser of the SC type acquired during 1947 from the U.S. Navy. Launched in 1943. Laid up in reserve in poor condition and will probably be sold or scrapped. *Amiral Killick*, GC 4, was discarded in 1954, *Toussaint L'Ouverture* (ex-SC 1064) was sold in 1959.
The coastguard patrol boats Nos. 1, 2, 3, 4, 5 and 6, originally of the U.S.C.G. 83 ft. type, have been stricken from the list.

SAVANNAH
Displacement: 47 tons
Dimensions: 83×16×4½ feet
Machinery: Diesels, 2 shafts. B.H.P.: 200=9 kts.
Complement: 12

General
Ex-U.S.C.G. cutter 56200, built in the U.S.A. in 1944 and acquired in 1944. Pennant No. GC 1.

ARTIBONITE (ex-U.S. LCT)
Displacement: 134 tons standard (285 tons full load)
Dimensions: 120½ (o.a.)×32×4½ feet
Machinery: 3 diesels. B.H.P.: 675=8 kts.
Complement: 12

General
Former United States tank landing craft. Salvaged by Haitian Coast Guard after grounding and converted. Pennant No. GC5. Laid up in reserve having been damaged by grounding in Mar. 1956. *Vertieres* GC 6 (ex-U.S.S. APC 92) was lost at sea.

SANS SOUCI (ex-Captain *James Taylor*)
Displacement: 161 tons
Machinery: Diesels, 2 shafts. B.H.P.: 300=10 kts.

General
Employed, when required, as the Presidential Yacht.

HONG KONG

INSHORE MINESWEEPERS



ETCHINGHAM 1961, Hong Kong R.N.R., Official

2 "Ham" Class

CARDINHAM M 2615 **ETCHINGHAM M 2625**

Displacement: 120 tons standard (159 tons full load)
Dimensions: 100 (pp.), 106½ (o.a.)×21½×5½ feet
Guns: 1—40 mm. Bofors AA.
Machinery: 2 Davey Paxman diesels, B.H.P.: 1,000=14 kts. (10 kts. sweeping)
Oil fuel: 15 tons
Complement: 15

General
Transferred from the Royal Navy to the Hong Kong Royal Naval Reserve in 1959. For specialised notes and group particulars see under the "Ham" class in the United Kingdom section.
Depôt Ship Hong Kong R.N.R.
The vessel which actually bears the name of the depôt ship of the Hong Kong Royal Naval Reserve, H.M.S. CORNFLOWER, is MFV 197.

HONDURAS

Coast Guard

A frigate was adapted for mercantile use. There are three small coastguard cutters.

Mercantile Marine
Lloyd's Register of Shipping: 46 vessels of 89,978 tons gross

HUNGARY

RIVER PATROL VESSELS

BAYA (ex-Borsch)
Displacement: 140 tons
Dimensions: 149½×19½×3½ feet
Guns: 2—70 mm., 2 M.G.
Machinery: A.E.G. turbines, 2 shafts, S.H.P.: 1,200=15 kts.
Boilers: 2 Yarrow
Oil fuel: 18 tons
Complement: 44

General
Built at the Ganz-Danubius Yard Budapest, and launched in 1918. Her screws work in tunnels.

Patrol Launches
Ten patrol launches of 100 tons displacement were reported to be in service.

DEPOT SHIP

CSOBANC
Displacement: 305 tons
Dimensions: 132×18×4½ feet
Machinery: 2 Diesels. Tunnel screws. B.H.P.: 180=8 kts.
Oil fuel: 8 tons
Complement: 18

General
Built at the Ganz-Danubius Yard, Budapest, and launched in 1928. Employed as a transport, maintenance vessel and supply ship.

TRAINING SHIP

BADASCONY
Displacement: 225 tons
Machinery: H.P.: 400=10.5 kts.

RIVER MINESWEEPERS

Displacement: 12 tons
Guns: 2 M.G. (Can also carry 8 mines)
Machinery: 2 diesels. B.H.P.: 75

General
Ten river minesweepers armoured with 8 mm. plating (photograph in the 1957-58 to 1960-61 editions) have been reported. They can sweep or lay mines.

Minesweeping Launches
Two small minesweepers of 70 tons displacement were reported to be in service.

ICELAND

Administration

Minister of Justice: Mr. Johann Hafstein.
 Director, Coast Guard Service: Captain Petur Sigurdsson.

The Coast Guard Service (Landhelgisgæzlan) deals with fishery protection, salvage, hydrographic research and surveying.

Coast Guard Patrol Vessels

Prefix of patrol vessels: v/s. Colour: dark grey.

Mercantile Marine

Lloyd's Register of Shipping: 252 vessels of 130,339 tons gross

COAST GUARD PATROL VESSELS



ODINN 1964, Icelandic Coast Guard Service, Official

ODINN

Displacement: 1,000 tons
 Dimensions: 200 (w.l.), 207 (o.a.) x 31 x 18½ feet
 Guns: 1—57 mm.
 Machinery: 2 diesel motors, 2 shafts, B.H.P.: 5,000=18 kts.
 Complement: 30

Construction
 Designed as a coast guard vessel. Built at Aalborg Vaerft A/S, Denmark. Laid down in Jan. 1959. Launched in Sep. 1959. Completed in Jan. 1960.

I Projected

General
 It was officially stated in Feb. 1965 that a new coast guard vessel of approximately 1,000 tons displacement is in the planning stage.
 This will be the first new construction project for the Icelandic Coast Guard Service for about seven years.



ALBERT 1958, Icelandic Coast Guard Service, Official

ALBERT

Measurement: 200 tons gross
 Dimensions: Length: 111½ feet
 Guns: 1—47 mm.
 Machinery: 1 Nohab diesel motor. B.H.P.: 650=12.5 kts.
 Complement: 15

Construction
 Launched in 1956. Completed and commissioned for service in Apr. 1957.

Recent Disposals
 The Coast Guard patrol vessel *Gautur* (ex-*Odinn*), also used for surveying, was officially taken out of service on 1 Jan. 1963.

The surveying launch *Tyr*, ex-R.A.F. pinnace, also used for local fishery protection, was officially deleted from the list in 1964.

The old patrol boat *Saebjorg* was taken out of service in Aug. 1965 and officially deleted from the Coast Guard Service list.

Loss
 The fishery protection patrol vessel and lighthouse tender *Hermadur* foundered off south-west Iceland on 17 Feb. 1959.

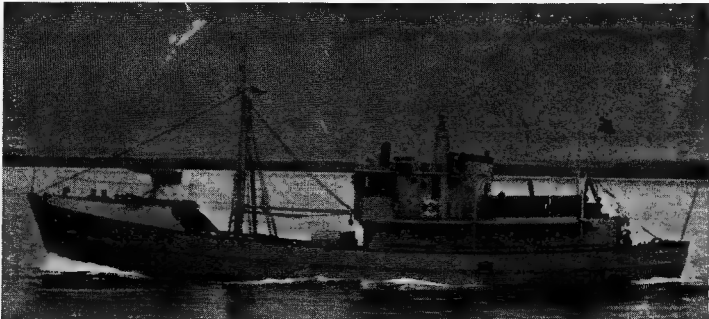


THOR 1963, Icelandic Coast Guard Service, Official

THOR

Displacement: 920 tons
 Measurement: 693 tons gross
 Dimensions: 183½ (pp), 206 (o.a.) x 31½ x 13 feet
 Guns: 1—57 mm.
 Machinery: 2 Crossley diesel motors, B.H.P.: 3,200=17 kts.
 Complement: 28

General
 Built at Aalborg, Denmark. Launched in 1951. Completed and commissioned in late 1951. Rated as coastal inspection and salvage vessel.



MARIA JÚLIA 1961, Icelandic Coast Guard Service, Official

MARIA JÚLIA

Measurement: 138 tons gross
 Dimensions: Length: 90 feet
 Guns: 1—47 mm.
 Machinery: Petters diesel motor. B.H.P.: 470=11.5 kts.
 Complement: 12

General
 Built at Frederikssund, Denmark. Launched in 1950. Also used for inshore fishery and hydrographic research.



AEGIR 1963, Icelandic Coast Guard Service, Official

AEGIR

Measurement: 507 tons gross
 Dimensions: 171½ (pp.), 187 (o.a.) x 29½ x 14½ feet
 Guns: 1—57 mm.
 Machinery: B. & W. diesel engines. B.H.P.: 1,300=13.5 kts.
 Complement: 25

General
 Built by Burmeister & Wain, Copenhagen. Launched on 25 Apr. 1929. Rebuilt in 1953. Also used as Research Vessel for offshore and hydrographic research.

INDIA

Administration.

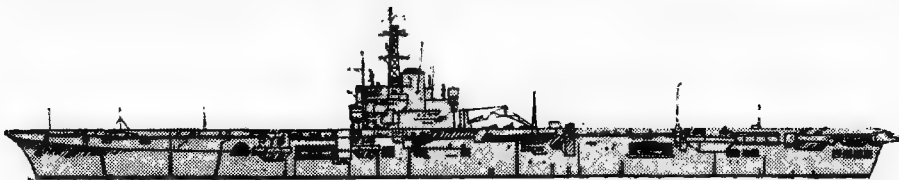
Chief of the Navy Staff:
Vice-Admiral Bhaskar Sadashiv Soman.
Flag Officer Commanding Indian Fleet:
Rear-Admiral Benjamin Abraham Samson.
Flag Officer, Bombay:
Rear-Admiral Reginald Sherring David.

Commodore-in-Charge, Cochin:
Commodore Gyan Sarup Kapoor.
Commodore, East Coast:
Commodore Jai Shankar Mehra.
Personnel
1965: 19,500 (1,500 officers, 18,000 ratings)

Naval Adviser in London:
Commodore Manchar Krishna Heblé.
Naval Attaché in Washington:
Captain Rabindra Nath Batra.
Mercantile Marine
Lloyd's Register of Shipping:
347 vessels of 1,448,237 tons gross

Silhouettes

Scale: 150 ft.=1 inch



VIKRANT



MYSORE

DELHI



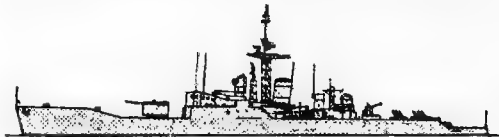
RANA, RAJPUT, RANJIT



KHUKRI, KIRPAN, KUTHAR



JUMNA, SUTLEJ



TALWAR, TRISHUL



GANGA, GODAVARI, GOMATI



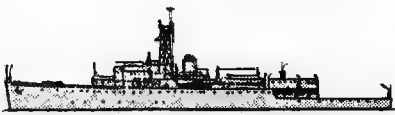
TIR



BEAS, BETWA, BRAHMAPUTRA

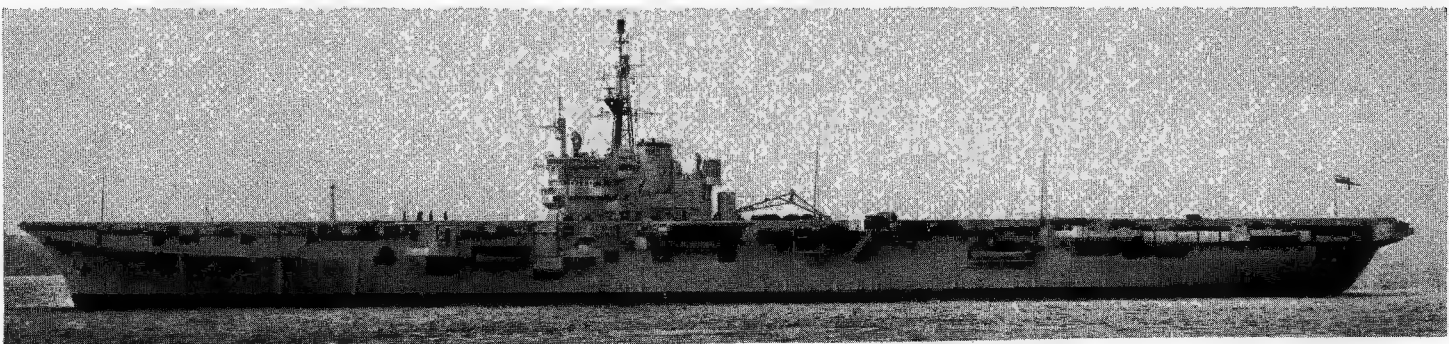


CAUVERY, KISTNA



INVESTIGATOR

AIRCRAFT CARRIER



VIKRANT

1961, Indian Navy, Official

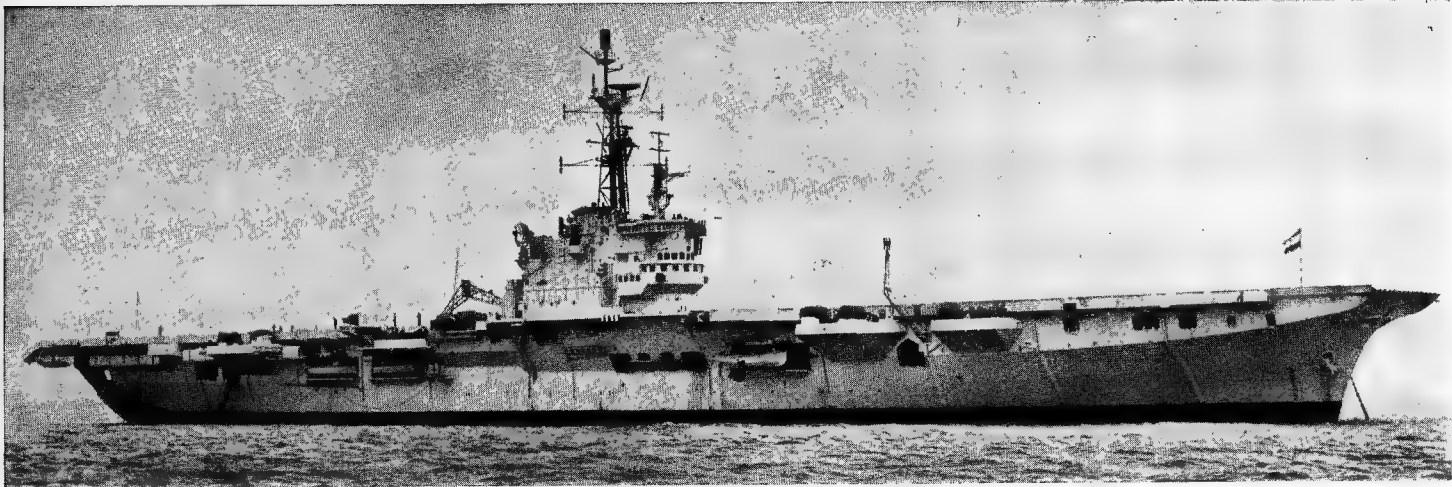
VIKRANT (ex-H.M.S. Hercules)

Pennant No. R 11
Builders: Vickers-Armstrongs Ltd., Tyne
Engineers: Parsons Marine Steam Turbine Company
Laid down: 14 Oct. 1943
Launched: 22 Sep. 1945
Completed: 4 Mar. 1961 (commissioned)
Displacement: 16,000 tons standard (19,500 tons full load)
Dimensions: Length: 630 (pp.), 700 (o.a.) feet. Beam (hull), 80 feet. Draught: 24 feet. Width overall, including angled deck and sponsons: 128 feet.
Guns: 15-40 mm. Bofors AA. (4 twin, 7 single)
Aircraft: 21 (capacity)

Machinery: Parsons single-reduction geared turbines, 2 shafts. S.H.P.: 40,000 =24.5 kts. designed
Boilers: 4 Admiralty 3-drum type
Complement: 1,343 (designed accommodation)
General
The construction of this ship was suspended in May 1946. When she was structurally approaching completion and about 75 per cent fitted out the contract was cancelled, and in May 1947 she was laid up at Faslane, Scotland. In Jan. 1957 she was acquired from Great Britain for the Indian Navy. In Apr. 1957 she arrived at Belfast for large scale reconstruction and modernisation by Harland & Wolff Ltd. She was renamed VIKRANT and commissioned on 4 Mar. 1961.
Habitability
Partially air-conditioned and insulated for tropical ser-

vice, the ship's sides being sprayed with asbestos cement instead of being lagged. Separate messes and dining halls. Pressed watertight doors of smaller pattern.
Engineering
Engines and boilers are arranged en echelon, one set of turbines and two boilers being installed side by side in each of the two main propelling machinery spaces, on the unit system, so that the starboard propeller shaft is longer than the port. The boilers work at a pressure of 400 lb. per sq. in. and a temperature of 700 degrees maximum-superheat.
Flight Deck
The aircraft complement, consisting of 10 Seahawk strike, 2 Alouette, and 4 Breguet. Alize anti-submarine aircraft, operate from an angled flight deck, which is equipped with a steam catapult, deck landing sights and two electrically operated aircraft lifts

Aircraft Carrier—continued

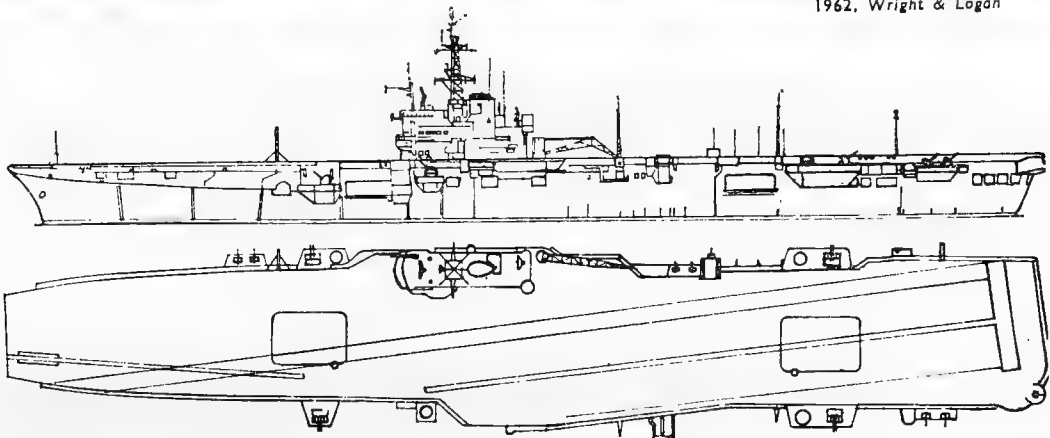


VIKRANT

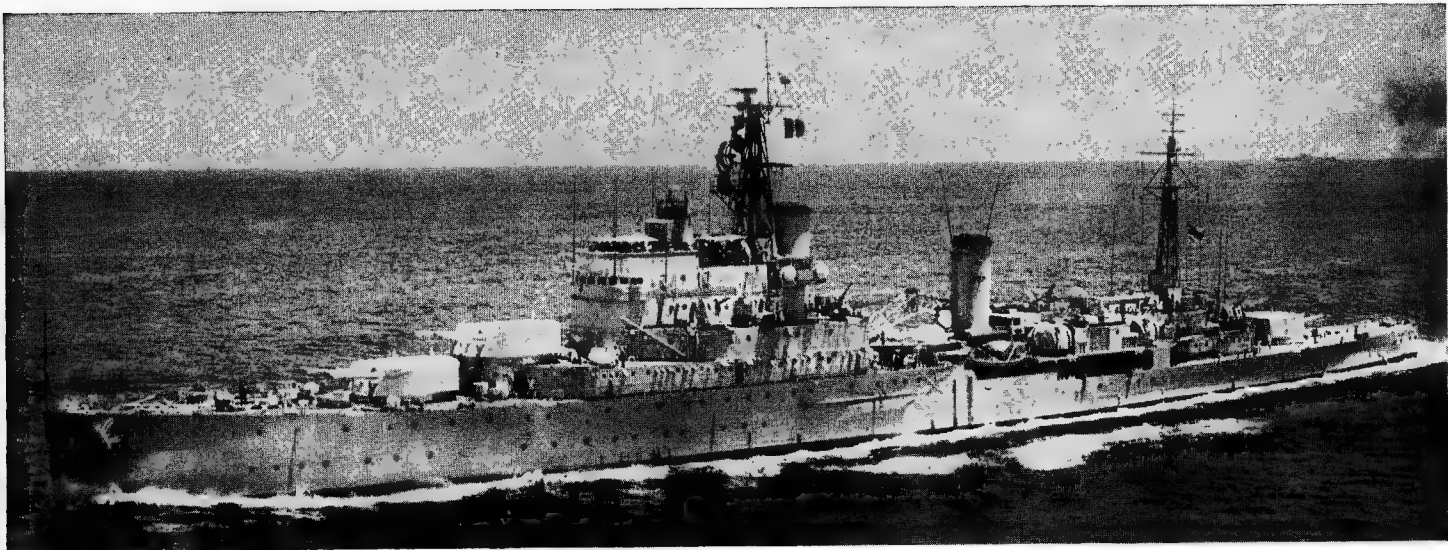
1962, Wright & Logan

Class
Originally a sister ship of *Leviathan* (never completed) and *Magnificent* (in the Royal Canadian Navy 1946-57) of the Royal Navy; *Sydney* (ex-*Terrible*) and *Melbourne* (ex-*Majestic*) in the Royal Australian Navy; and *Bona-venture* (ex-*Powerful*) in the Royal Canadian Navy.

Drawing
Port elevation and plan. Drawn in 1962. Scale: 128 feet=1 inch.



CRUISERS

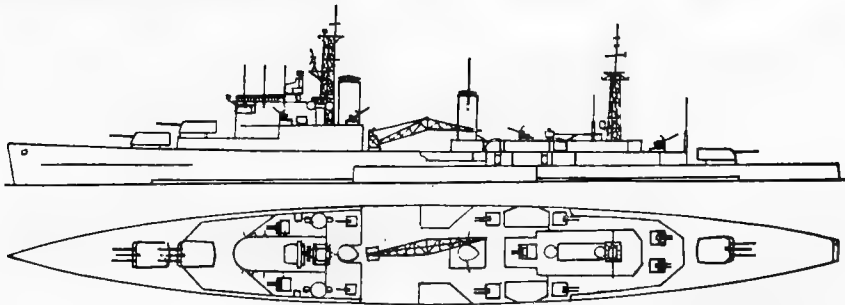


MYSORE

1961, Admiralty, Official

MYSORE (ex-H.M.S. *Nigeria*)
Pennant No. C 60
Builders: Vickers-Armstrongs, Ltd., Tyne
Engineers: Parsons
Laid down: 8 Feb. 1938
Launched: 18 July 1939
Completed: 23 Sep. 1940
Displacement: 8,700 tons standard (1,040 tons full load)
Dimensions: Length: 538 (pp.), 549 (w.l.), 555½ (o.a.) feet. Beam: 62 feet. Draught: 19 (mean), 21 (max.) feet
Guns: 9—6 inch, 8—4 inch AA. 12—40 mm. AA. (5 twin, 2 single)
Armour: 4½" 3" side, 2" turrets, 4" C.T., 2" deck
Machinery: Parsons geared turbines. 4 shafts. S.H.P.: 72,500=31.5 kts.
Boilers: 4 Admiralty 3-drum type
Complement: 800 (officially revised figure)

General
Formerly a "Colony" class cruiser in the Royal Navy. Purchased from Great Britain (announced 8 April 1954) for £300,000. Underwent an extensive refit and conversion by Cammell Laird & Co. Ltd., Birkenhead, which was completed at the end of 1957, before commissioning for operational service. Now flagship of the Indian Navy.



Transfer

The ship was formerly handed over to the Indian Navy at Birkenhead and renamed *Mysore* on 29 Aug. 1957.

Reconstruction

Ship formerly had tripod masts. During reconstruction the triple 6 inch turret in "X" position and the 6—21 inch torpedo tubes (tripled) were removed, the bridge

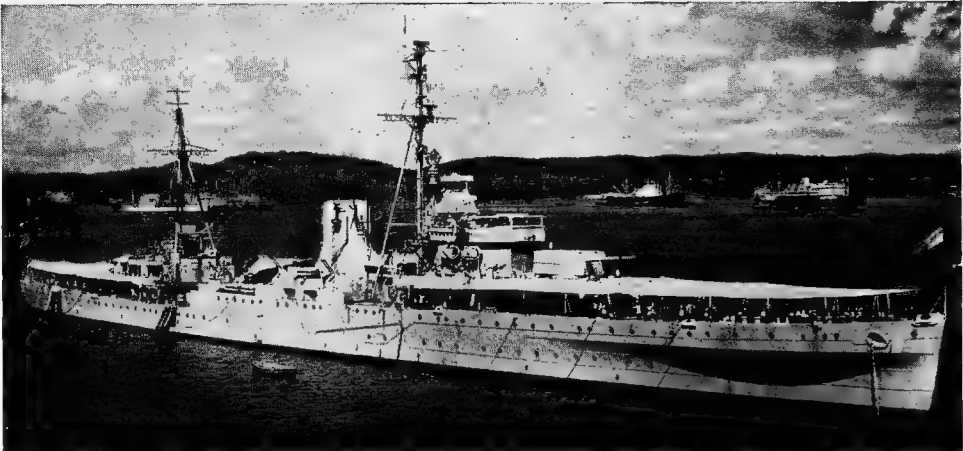
was modified, and two lattice masts were stepped. All electrical equipment was replaced and the engine room and other parts of the ship were refitted extensively.

Drawing

Port elevation and plan. Redrawn in 1958. Scale 128 feet=1 inch.

DELHI (ex-H.M.S. Achilles)

Pennant No.	C 74
Builders:	Cammell Laird & Co. Ltd., Birkenhead
Laid down:	11 June 1931
Launched:	1 Sep. 1932
Completed:	5 Oct. 1933
Displacement:	7,114 tons standard (9,740 tons full load)
Dimensions:	Length: 522 (pp.), 554½ (o.a.) feet. Beam, 55½ feet. Draught: 19 feet (mean), 20 feet (max.)
Guns:	6—6 inch, 8—4 inch AA., 14— 40 mm. AA., 4—3 pdr.
Tubes:	Removed (see notes)
Armour:	4" 2" side, 1" gunhouses, 1" bridge, 2" deck
Machinery:	Parsons geared turbines; 4 shafts. S.H.P.: 72,000=32 kts.
Boilers:	4 Admiralty 3-drum type
Oil fuel:	1,800 tons
Complement:	800 (officially revised figure)



DELHI

1961, Admiralty, Official

General
Formerly a "Leander" class light cruiser in the Royal Navy. Purchased from Great Britain and delivered on 5 July 1948. Refitted in 1955. Formerly the flagship of the Indian Navy until relieved by the Mysore in 1957.

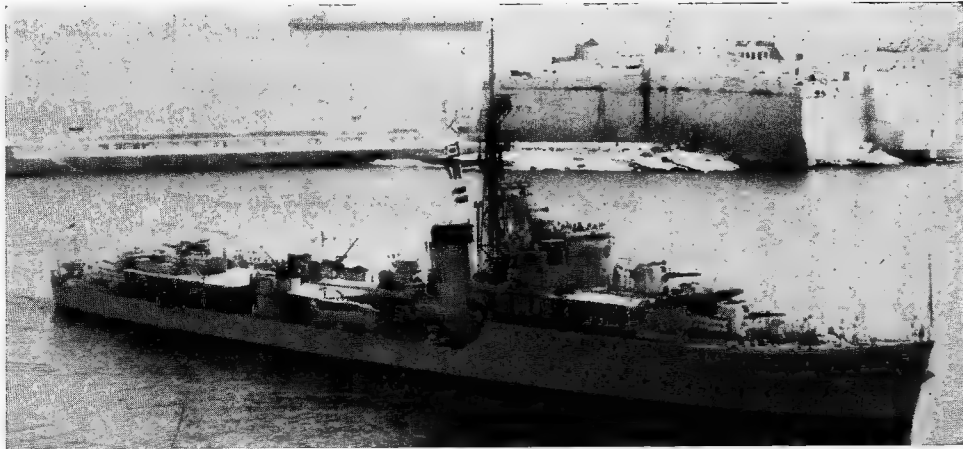
Torpedo Tubes
In 1958 the original eight 21 inch torpedo tubes in two quadruple banks, were removed and the forecandle plating was extended aft to the twin 40 mm. AA. guns abreast the boat stowage.

Historical
As H.M.S. Achilles, then lent to the Royal New Zealand Navy, this ship, with H.M.S. Ajax and H.M.S. Exeter, defeated the German battleship Admiral Graf Spee in the battle of the River Plate on 17 Dec. 1939.

DESTROYERS

3 "R" Class

RANA (ex-H.M.S. Raider)	
RAIPUT (ex-H.M.S. Rotherham)	
RANJIT (ex-H.M.S. Redoubt)	
Displacement:	1,725 tons standard (2,424 tons full load) officially revised figures)
Dimensions:	339½ (w.l.), 362 (o.a.)×35½×16 (max.) feet
Guns:	4—4.7 inch, 4—40 mm. AA.
Tubes:	Removed (see Torpedo notes)
A/S weapons:	4 D.C.T.
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 40,000=34 kts. (max.), 32 kts. sea speed
Boilers:	2 Admiralty 3-drum type
Oil fuel:	490 tons
Radius:	2,500 miles at 20 kts.
Complement:	240



RAJPUT

1962, A. & J. Payia

General
These were the first British destroyers with officers' accommodation forward instead of aft. They were re-fitted and modernised prior to transfer. Ranjit on 4 July 1949; Rajput on 29 July 1949; and Rana in Sep. 1949. All three arrived in Indian waters in Jan. 1950. They constitute the 11th Destroyer Squadron of which Rajput is Leader.

Torpedo Tubes
Formerly mounted eight 21-inch torpedo tubes in two quadruple banks.

Photographs
Photographs of Rana appear in the 1953-54 to 1957-58 editions. A photograph of Ranjit appears in the 1954-55 to 1961-62 editions.

Name	Pennant No.	Builders	Begun	Launched	Completed
Rana	D 115	Cammell Laird & Co. Ltd., Birkenhead	16 Apr. 1941	1 Apr. 1942	16 Nov. 1942
Rajput	D 209	John Brown & Co. Ltd., Clydebank	10 Apr. 1941	21 Mar. 1942	27 Aug. 1942
Ranjit	D 141	John Brown & Co. Ltd., Clydebank	19 June 1941	2 May 1942	1 Oct. 1942

ANTI-AIRCRAFT FRIGATES

3 "Leopard" Class

BEAS	BETWA	BRAHMAPUTRA (ex-Panther)
Displacement:	2,251 tons standard (2,515 tons full load)	
Dimensions:	320 (pp.), 330 (w.l.), 339½ (o.a.)×40×11 (mean) 12½ (max.) feet	
Guns:	4—4.5 inch (in two twin tur- rets), 4—40 mm. AA.	
A/S weapons:	Squid triple-barrelled depth charge mortar	
Machinery:	Admiralty standard range diesels. 2 shafts. B.H.P.: 12,380=25 kts.	
Oil fuel:	230 tons	
Complement:	210	

General
Brahmaputra (Leader) was originally ordered as the Panther for the Royal Navy on 28 June 1951. She was the first major warship to be built in Great Britain for the Indian Navy since India became independent. All three ships are generally similar to the British frigates of the "Leopard" class, but modified to suit Indian conditions.

Photographs
A larger photograph of Brahmaputra appears in the 1959-59 to 1960-61 editions.



BETWA

1961, Wright & Logan

Name	Pennant No.	Builders	Launched	Completed
Beas	F 137	Vickers-Armstrongs Ltd., Newcastle-on-Tyne	9 Oct. 1958	24 May 1960
Betwa	F 139	Vickers-Armstrongs Ltd., Newcastle-on-Tyne	15 Sep. 1959	8 Dec. 1960
Brahmaputra	F 31	John Brown & Co. Ltd., Clydebank	15 Mar. 1957	28 Mar. 1958

ANTI-SUBMARINE FRIGATES

2 "Whitby" Class. 1st Rate

Name:	TALWAR	TRISHUL (Leader)
Pennant No.:	F 140	F 143
Builders:	Cammell Laird & Co. Harland & Wolff Ltd., Birkenhead	Harland & Wolff Ltd., Belfast
Launched:	18 July 1958	18 June 1959
Completed:	1960	1960

Displacement:	2,144 tons standard (2,545 and 2,557 tons full load, respectively)
Dimensions:	360 (pp.), 369½ (o.a.)×41×12 feet
Guns:	2—4.5 inch, 4—40 mm. AA. (twin before Limbos, single abaft funnel)
A/S weapons:	2 Limbo three-barrelled depth charge mortars
Machinery:	2 sets geared turbines, 2 shafts. S.H.P.: 30,430=over 30 kts.
Oil fuel:	400 tons
Boilers:	2 Babcock & Wilcox
Complement:	231 (11 officers, 220 ratings)

General
Built in Great Britain and generally similar to the British frigates of the "Whitby" class, but modified to suit Indian conditions. Talwar is a common type of weapon in India.
Torpedo Tubes
Provision was made in the original design for twelve 21 inch (eight single A/S and two twin) but they were not fitted.
Photographs
A larger photograph of Trishul appears in the 1960-61 edition.



TALWAR 1961, Admiralty, Official

3 "Blackwood" Class. 2nd Rate

KHUKRI	KIRPAN	KUTHAR
Displacement:	1,180 tons standard (1,456 tons full load) officially revised figures)	
Dimensions:	300 (pp.), 310 (o.a.) × 33 × 11 feet	
Guns:	3—40 mm. Bofors AA. Mk. 9	
Tubes:	Provision for 4—21 inch (two twin), but not fitted	
A/S weapons:	2 Limbo three-barrelled depth charge mortars, Mk. 10	
Machinery:	1 set geared turbines, 1 shaft. S.H.P.: 15,000=27.8 kts. (24.5 max. continuous sea speed)	
Boilers:	Babcock & Wilcox	
Oil fuel:	300 tons	
Complement:	150	

General
Built in Great Britain, and generally similar to the British frigates of the "Blackwood" class; but without torpedo tubes and slightly modified to suit Indian requirements. Kirpan means Sword.



KHUKRI 1960, courtesy J. Samuel White & Co. Ltd., Builders

Name	Pennant No.	Builders	Launched	Completed
Khukri	F 149	J. Samuel White & Co. Ltd., Cowes, Isle of Wight	20 Nov. 1956	16 July 1958
Kirpan	F 144	Alex Stephen & Sons Ltd., Govan, Glasgow	19 Aug. 1958	July 1959
Kuthar	F 146	J. Samuel White & Co. Ltd., Cowes, Isle of Wight	14 Oct. 1958	1959

GENERAL PURPOSE FRIGATES

3 New Construction
"Leander" Class

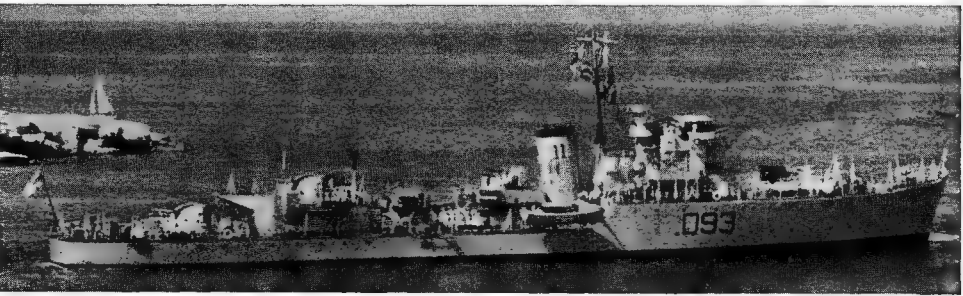
General
It is officially stated that three new general purpose (Anti-Submarine Versatile Type) frigates of the "Leander" class in the Royal Navy, but modified to suit Indian conditions. They will be generally similar to the Improved Type 12.

FRIGATES (Escort Destroyers)

3 "Hunt" Class. Type II

GANGA (ex-H.M.S. Chiddingfold)	
GODAVARI (ex-H.M.S. Bedale, ex-Slajak, ex-Bedale)	
GOMATI (ex-H.M.S. Lamerton)	
Displacement:	1,050 tons standard (1,610 tons full load)
Dimensions:	264½ (pp.), 280 (o.a.) × 31½ × 14 (max.) feet
Guns:	6—4 inch AA., 4—20 mm. AA.
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 19,000=25 kts.
Boilers:	2 Admiralty 3-drum type
Oil fuel:	280 tons
Radius:	3,700 miles at 14 kts.
Complement:	200

General
"Hunt" class, Type II frigates (ex-Escort Destroyers) F 131, F 126, and F 88, respectively. Transferred from Great Britain April/May 1953. Lent to Indian Navy for three years, subject to extension by agreement. Officially rated as destroyers with D pennant Nos. and constitute the 22nd Destroyer Squadron. Godavari is Leader.
Photographs
A photograph of Godavari appears in the 1953-54 to 1955-56 editions, and of Ganga in the 1954-55 to 1959, 60 editions.



GOMATI 1954, A. & J. Pavia

Name	Pennant No.	Builders	Laid down	Launched	Completed
Ganga	D 94	Scott's Shipbuilding & Engineering Co. Ltd., Greenock	1 Mar. 40	10 Mar. 41	16 Oct. 41
Godavari	D 92	R. & W. Hawthorn, Leslie & Co. Ltd., Hebburn	29 May 40	5 Sep. 41	18 June 44
Gomati	D 93	Swan, Hunter & Wigham Richardson Ltd., Wallsend	10 Apr. 40	14 Dec. 40	16 Aug. 44

SUBMARINES

General
In Nov. 1964 the Indian Defence Minister stated that it was intended to purchase from a British shipyard a modern submarine. She was expected to be basically similar to the British "Oberon" class

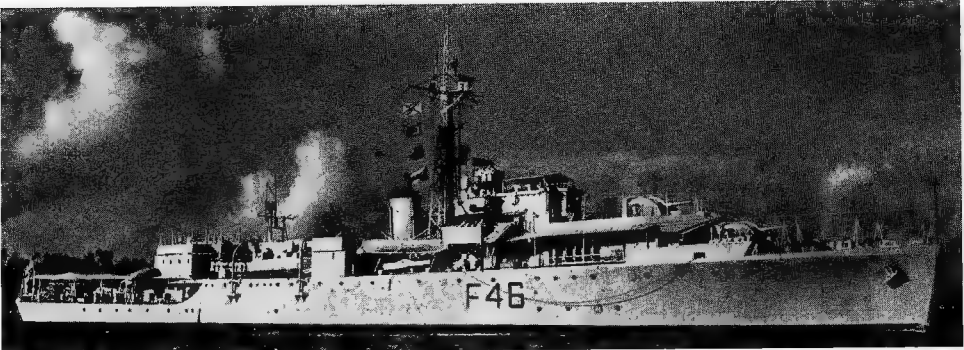
design, but modified to suit Indian conditions, and estimated to be operational in a minimum of three years, in the mean-time a submarine of the Royal Navy would be lent to India for a few months each

year to train the Indian Navy in anti-submarine warfare.
But in Aug. 1965 the Indian Defence Minister said it was proposed to purchase six submarines from the U.S.S.R.

FRIGATES (ex-Sloops)

2 "Kistna" Class

Name:	CAUVERY	KISTNA
Pen. No.:	F 110	F 46
Builders:	Yarrow & Co. Ltd., Scottstoun, Glasgow	Yarrow & Co. Ltd., Scottstoun, Glasgow
Laid down:	28 Oct. 1942	14 July 1942
Launched:	15 June 1943	22 Apr. 1943
Completed:	21 Oct. 1943	23 Aug. 1943
Displacement:	1,470 tons standard (1,925 tons full load)	
Dimensions:	283 (pp.), 295½ (w.l.), 299½ (o.a.)×38½×11½ feet	
Guns:	4—4 inch, 4—40 mm. AA.	
A/S weapons:	2 D.C.T.	
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 4,300=19 kts.	
Boilers:	2, of 3-drum type	
Oil fuel:	370 tons	
Radius:	4,500 miles at 12 kts.	
Complement:	240	



KISTNA

1962, Edward Rodwell

General
Former sloops of the British "Black Swan" type built for India and modified to suit her conditions. Retained on the effective list, but likely to be disposed of in the

Photographs
near future. Cauvery and Kistna, together with Jumna (see next page) constituted the 12th Frigate Squadron. A photograph of Cauvery appears in the 1955-56 to 1959-60 editions.

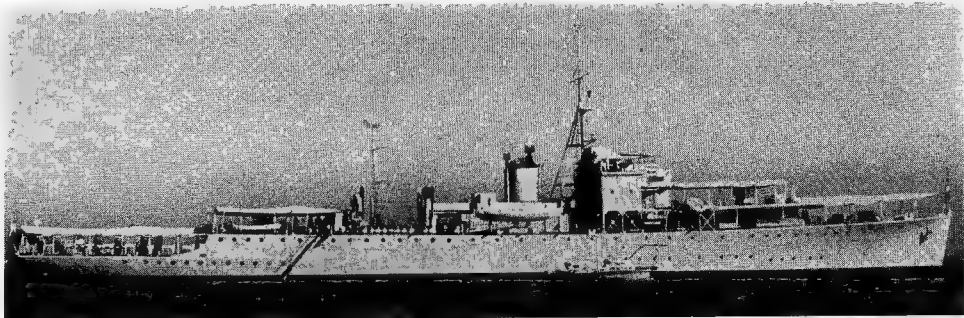
TRAINING FRIGATE

1 "River" Class

TIR (ex-H.M.S. Bann)

Pennant No.	F 256
Builders:	Charles Hill & Sons Ltd., Bristol
Laid down:	18 June 1942
Launched:	29 Dec. 1942
Completed:	7 May 1943

Displacement:	1,463 tons standard (1,934 tons full load) officially revised figures
Dimensions:	283 (pp.), 303 (o.a.)×36½×14½ feet
Guns:	1—4 inch, 1—40 mm., 2—20 mm.
Machinery:	Triple expansion, 2 shafts. I.H.P.: 5,500=18 kts.
Boilers:	2 Admiralty 3-drum type
Oil fuel:	385 tons (officially revised figure)
Radius:	3,100 miles at 12 kts.
Complement:	135 (officially revised figure)



TIR

1964, Indian Navy, Official

General
Former "River" class frigate in Royal Navy. Converted to a Midshipmen's Training Frigate by Bombay Dockyard in 1948. Originally the sister ship of Investigator, see below, under survey ships.

SURVEY SHIPS

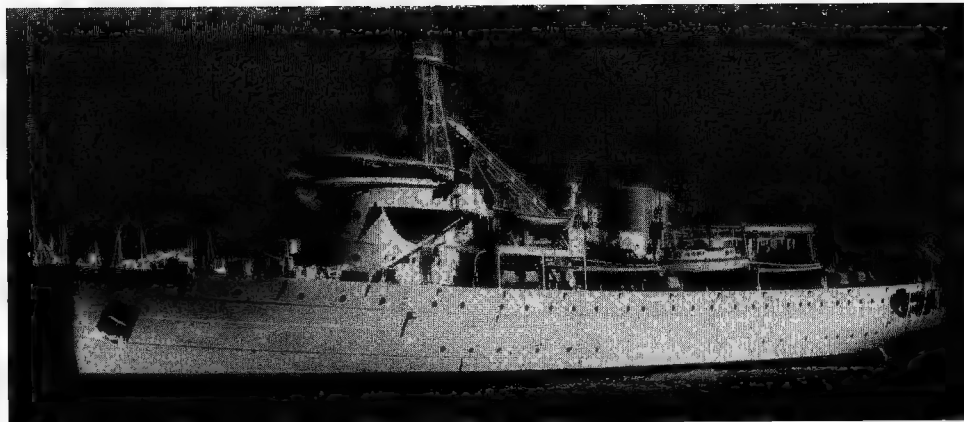
1 New Construction

DARSHAK

Builders:	Hindustan Shipyard Vizagapatam
Launched:	2 Nov. 1959
Commissioned:	28 Dec. 1964

Displacement:	2,790 tons
Dimensions:	319 (o.a.)×49×28½ feet
Aircraft:	1 helicopter
Machinery:	2 diesel-electric propulsion plants D.H.P.: 3,000=16 kts.
Complement:	150

General
This ship marked a new stage in Indian shipbuilding. She was the first ship to be built by the Indian yard for the Navy. The ship is operated by the Navy's hydrographic branch to undertake a marine survey of the Indian coastline and harbours. She is fitted with the latest surveying and navigational equipment, and has several surveying boats and motor launches. She also carries a helicopter. The ship is all welded.



DARSHAK

1965, Indian Navy, Official

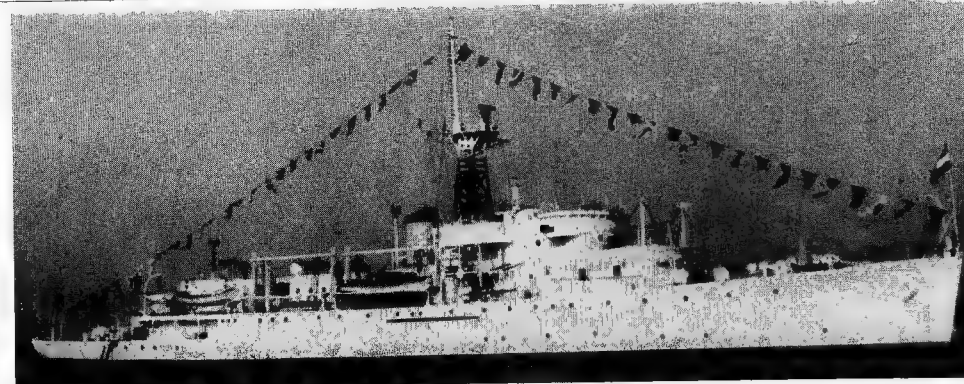
1 "River" Class (ex-Frigate)

INVESTIGATOR (ex-Khukri, ex-H.M.S. Trent)

Pennant No.	F 243
Builders:	Charles Hill & Sons Ltd., Bristol
Laid down:	31 Jan. 1942
Launched:	10 Oct. 1942
Completed:	15 Feb. 1943

Displacement:	1,460 tons standard (1,930 tons full load)
Dimensions:	283 (pp.), 303 (o.a.)×36½×14 feet
Machinery:	Triple expansion, 2 shafts. I.H.P.: 5,500=18 kts. (max.)
Boilers:	2 Admiralty 3-drum type
Complement:	150 (officially revised figure)

General
Former "River" class frigate in Royal Navy. Converted to a surveying vessel and renamed Investigator in 1951. Originally the sister ship of the training frigate Tir, see above.



INVESTIGATOR

1965, Indian Navy, Official

Survey Ships-continued

2 "Sutlej" Class (Ex-Frigates, ex-Sloops)

Name:	JUMNA	SUTLEJ
Pen. No.:	F 11	F 95
Builders:	Wm. Denny & Bros. Ltd., Dumbarton	Wm. Denny & Bros. Ltd., Dumbarton
Laid down:	20 Feb. 1940	4 Jan. 1940
Launched:	16 Nov. 1940	1 Oct. 1940
Completed:	13 May 1941	23 Apr. 1941

Displacement:	1,300 tons standard (1,750 tons full load)
Dimensions:	276 (w.l.), 292½ (o.a.)×37½×11½ feet
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 3,600-18 kts.
Boilers:	2 Admiralty 3-drum type
Oil fuel:	370 tons
Radius:	5,600 miles endurance at 12 kts.
Complement:	220 (officially revised figure)

General

Former frigates employed as survey ships since 1957 and 1955 respectively.

Both the above ships are generally similar to the former British frigates of the "Egret" class.

Squadron

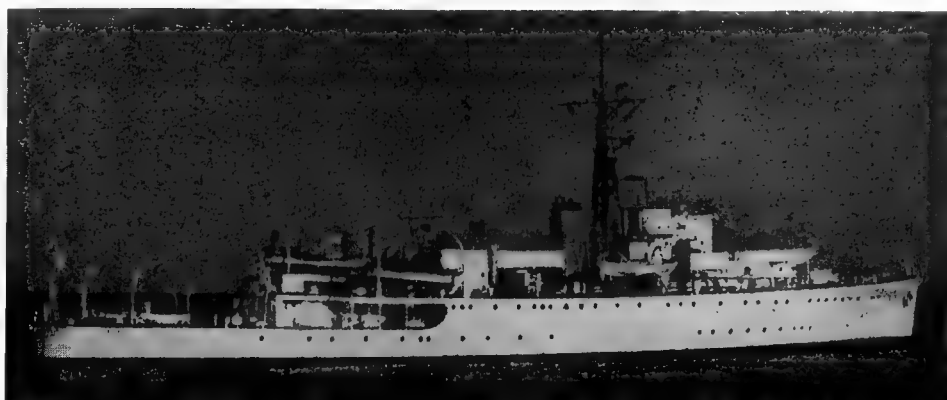
Jumna and *Sutlej*, together with *Cauvery* and *Kistna* (see previous page) formerly constituted the 12th Frigate Squadron.

Conquest

Afonso de Albuquerque, former Portuguese frigate disabled and taken in the Goa conquest in Dec. 1961, was incorporated into the Indian Navy after repairs.

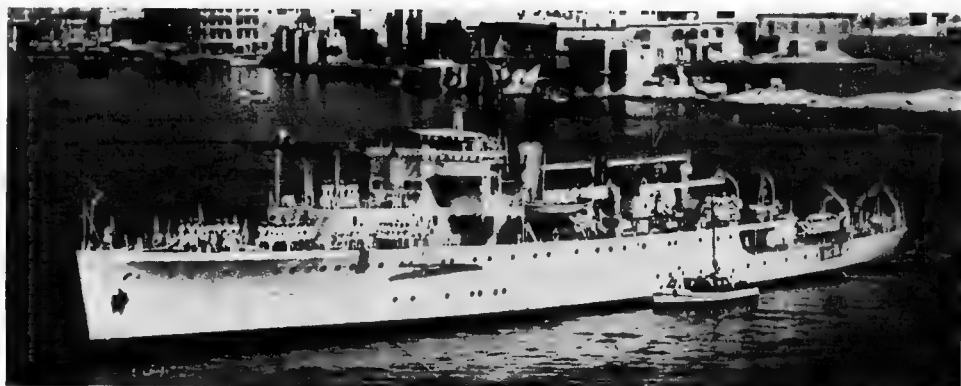
Disposals of Ocean Minesweepers

Of the old ocean minesweepers, *Rohilkhand* and *Rajputana* were disposed of in 1960, and *Bombay* and *Madras* in 1961. *Bengal* and *Konkan* will be discarded in the near future (see full particulars and photographs in the 1959-60 edition).



JUMNA

1962, A. & J. Pavia



SUTLEJ

1958, Indian Navy, Official

COASTAL MINESWEEPERS

INSHORE MINESWEEPERS



CUDDALORE

Added 1965, J. W. Kennedy



KARWAR

1964, A. & J. Pavia

4 "Ton" Class

CANNANORE (ex-Whitton) M 1191 KAKINADA (ex-Durweston) M 1201
CUDDALORE (ex-Wennington) M 1190 KARWAR (ex-Overton) Leader M 1197

Displacement:	360 tons standard (425 tons full load)
Dimensions:	140 (pp.), 153 (o.a.)×28½×8½ feet
Guns:	1-40 mm. Bofors AA., 2-20 mm. AA.
Machinery:	Napier Deltic diesels, 2 shafts. B.H.P.: 1,250=15 kts.
Oil fuel:	45 tons
Complement:	40 (officially revised figure)

General

"Ton" class coastal minesweepers of wooden construction built for the Royal Navy, but transferred from Great Britain to the Indian Navy in 1956. *Cannanore* built by Fleetlands Shipyard, Ltd., Gosport, launched 30 Jan. 1956; *Karwar* built by Camper & Nicholson, Ltd., Gosport, launched 30 Jan. 1956. *Cuddalore* built by J. S. Daig Ltd., Grimsby, and *Kakinada* built by Dorset Yacht Co. Ltd., Hamworthy, taken over in August 1956, and sailed for India Nov./Dec. 1956. Named after minor ports in India. Constitute the 18th Minesweeping Squadron, together with the Inshore minesweepers. Four more are to be acquired. Coastal minesweepers will first be built at the dockyards acquired by the Indian Navy in Bombay and Calcutta.

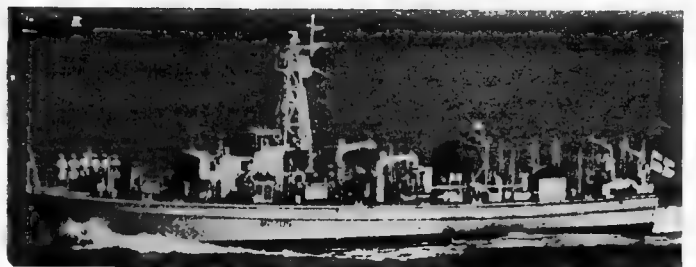
Photographs

A photograph of *Cannanore* appears in the 1957-58 to 1963-64 editions.



BASSEIN

1965, Indian Navy, Official



BIMLIPITAN

1956, A. & J. Pavia

2 "Ham" Class

BASSEIN (ex-Littleham) M 2707 BIMLIPITAN (ex-Hildersham) M 2705

Displacement:	120 tons standard (170 tons full load)
Dimensions:	98 (pp.), 107 (o.a.)×22×6½ feet (officially revised figures)
Guns:	1-20 mm. Oerlikon AA.
Machinery:	2 Paxman diesels: B.H.P.: 550=14 kts. (9 kts. sweeping)
Oil fuel:	15 tons
Complement:	16

General

"Ham" class inshore minesweepers of wooden construction built for the Royal Navy but transferred from Great Britain to the Indian Navy in 1955. *Bassein* was built by Brooke Marine Ltd., Oulton Broad, Lowestoft, and launched on 4 May 1954; *Bimlipitan* was built by Vosper Ltd., Portsmouth, and launched on 5 Feb. 1954.

Disposals

Barg (ex-MMS 132), MMS 130 and MMS 154, former British motor minesweepers of "105" ft. type, of wooden construction, transferred from Great Britain, have been relegated to yard craft. MMS 1632 and MMS 1654 are yard craft in Bombay.

SEAWARD DEFENCE BOATS

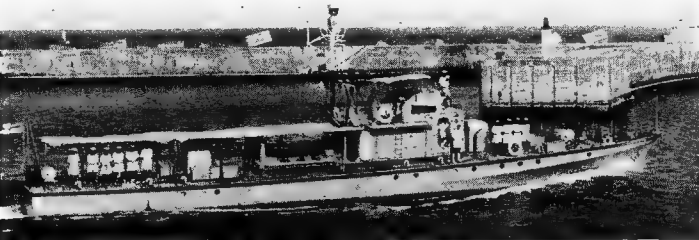


AJAY 1964, Indian Navy, Official

3 "Ajay" Class

ABHAY	AJAY	AKSHAY
Displacement:	120 tons standard (146 (Ajay) and 151 (Abhay, Akshay) tons full load)	
Dimensions:	110 (pp.), 117½ (o.a.) × 20 × 5 feet	
Guns:	1—40 mm. AA.	
Machinery:	2 diesels. Speed=18 kts.	

General
Generally similar to the "Ford" class in the Royal Navy. Ajay was built by Garden Reach Workshop, Calcutta and commissioned on 21 Sep 1960. Abhay and Akshay were both built by Hoogly Docking and Engineering Company Ltd., Calcutta and commissioned on 13 Nov. 1961 and 8 Jan. 1962, respectively.



SHARADA 1964, Indian Navy, Official

2 "Sharada" Class

SHARADA SDB 3133		SUKANYA SDB 3132
Displacement:	86 tons	
Dimensions:	103½ feet length	
Guns:	Small arms	
Machinery:	Diesels	

General
Built in Yugoslavia. Commissioned on 5 Dec. 1959 and 12 Dec. 1959, respectively.



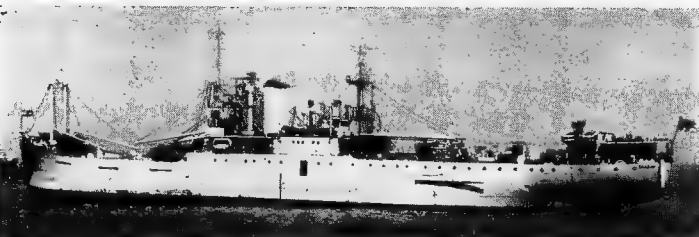
SAVITRI 1964, Indian Navy; Official

4 "Savitri" Class

SAVITRI SDB 3123	SHARYU SDB 3129	SUBHADRA SDB 3130	SUVARNA SDB 3131
Displacement:	63 tons		
Dimensions:	85½ (pp.), 90½ (o.a.) × 20 × 5 feet		
Guns:	Small arms		
Machinery:	2 diesels. 2 shafts. B.H.P.: 1,900=21 kts.		

General
Built in Italy. Commissioned on 6 Feb. 1958, 28 Oct. 1957, 20 Aug. 1957 and 28 Aug. 1957, respectively. Constitute the 322nd SDB Squadron, of which Sharyu is Leader. A photograph of Savitri appears in the Addenda.

REPAIR SHIP

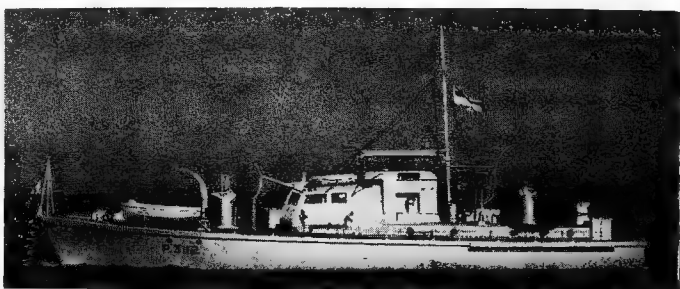


DHARINI 1964, Indian Navy, Official

DHARINI (ex-Hermine)	
Displacement:	4,625 tons
Dimensions:	328×46×19 feet
Machinery:	Triple expansion
Oil fuel:	621 tons

General
Cargo ship converted to a tender. Officially rated as a repair and store ship. Commissioned in May 1960. A photograph of Dharini appears in the Addenda.

SEAWARD PATROL CRAFT



SPC 3112 1957, Indian Navy, Official

4 HDML Type

SPC 3110 (ex-HDML 1110)	SPC 3117 (ex-HDML 1117)
SPC 3112 (ex-HDML 1112)	SPC 3118 (ex-HDML 1118)
Displacement:	48 tons standard (54 tons full load)
Dimensions:	72 (o.a.) × 16 × 4½ feet
Guns:	2—20 mm. AA.
Machinery:	Diesel, 2 shafts. B.H.P.: 320=12 kts.
Complement:	14

General
Former British Harbour Defence Motor Launches. These boats, formerly known as Seaward Defence Motor Launches, constitute the 321st Sea/Land Patrol Craft Squadron.

Recent Disposal
The seaward patrol craft SPC 6420 (ex-ML 6420, ex-ML 420) of the Fairmile "B" motor-launch type, was stricken from the Navy list in 1963.

LANDING SHIP



MAGAR Added 1964, A. & J. Pavia

MAGAR (ex-H.M.S. Avenger, LST (3) 3011)	
Displacement:	2,256 tons light (4,980 tons full load)
Dimensions:	347½ (o.a.) × 55½ × 11½ feet
Guns:	2—40 mm. AA., 6—20 mm. AA. (2 twin 2 single)
Machinery:	Triple expansion, 2 shafts. I.H.P.: 5,500=13 kts.
Complement:	180 (officially revised figure)

General
Former British tank landing ship of the LST (3) type transferred in 1949.

LANDING CRAFT

LCT 4294	
Displacement:	200 tons
Dimensions:	187½ × 38½ × 3½ feet
Machinery:	Speed 9.5 kts.

General
3,000 added to original numbers. LCT 4117, 4298, 4315, 4358 and 4360 were discarded in 1957, and LCT 4310 in 1961. LCT 4294 is relegated to a yard craft.

OILERS

SHAKTI	
Displacement:	3,500 tons
Dimensions:	323 × 44 × 20 feet
Machinery:	Diesel. Speed: 13 kts. (max.), 9 kts. (economical)

General
Rated as Fleet Replenishment Group Tanker. Acquired from Italy in Nov. 1953.

CHILKA	SAMBHAR
Displacement:	1,530 tons (officially revised figure)
Dimensions:	202 × 30½ × 13 feet
Machinery:	Triple expansion. I.H.P.: 809=9 kts
Oil capacity:	1,000 tons

General
Chilka built by Blythwood Shipbuilding Co., Scotstoun. Sambhar by A. & J. Inglis, Ltd., Glasgow, launched 1942. Both acquired in 1948. Engine by David Rowan & Co. Two steam dynamos, two steam pumps, ballast pump. Rated as yard craft.

TUG

HATHI	
Displacement:	668 tons
Dimensions:	147½ × 32½ × 15 feet
Machinery:	Triple expansion. Speed=13 kts.
Complement:	45

General
Built by the Taikoo Dock & Engineering Company, Hong Kong. Launched in 1932.

INDONESIA

Administration

Minister of the Navy and Chief of Naval Staff:
Vice-Admiral Raden Edi Martadinata

Deputy Chief of Naval Staff:
Commodore R. Muljadi

Commander-in-Chief Indonesian Fleet:
Commodore Hamsah Atmohandojo

Naval and Air Attaché in London:
Air Commodore R. Iman Soewongso
Wirjosapoetro.

Naval and Air Attaché in Washington:
Brigadier General Indro Soebagio.

Personnel

Navy: 25,000 (2,000 officers, 23,000 men)
Total: 34,200 (including 3,550 Marine Corps.
Air Arm, and Commando Corps)

Mercantile Marine

Lloyd's Register of Shipping
393 vessels of 470,395 tons gross

CRUISERS



IRIAN Added 1963, Wright & Logan

I Ex-U.S.S.R. "Sverdlov" Class

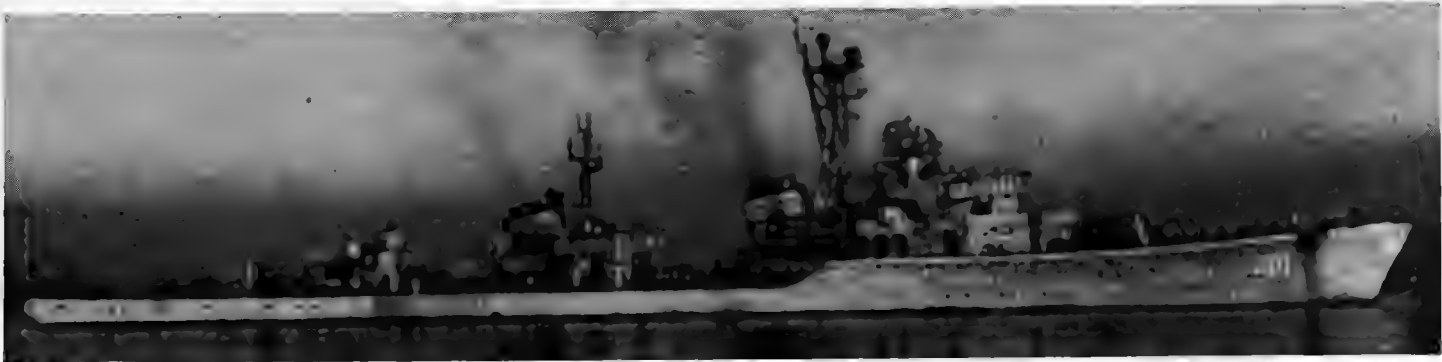
IRIAN (ex-Ordzhonikidze)

Displacement: 15,450 tons standard (19,200 tons full load)
Dimensions: 656 (pp.), 689 (o.a.) feet
Beam: 70 feet. Draught: 16 (mean), 24½ (max.) feet
Guns: 12—6 inch (four triple); 12—3.9 inch (six twin); 32—37 mm. AA. (16 twin)

Tubes: 10—21 inch (two quintuple)
Mines: 140 to 250 capacity
Armour: 4" to 1½" belt; 5" turrets; 6" C.T.; 3" to 1" decks
Machinery: Geared steam turbines. 2 shafts. S.H.P.: 130,000=34.5 kts.
Boilers: 6
Oil fuel: 4,000 tons
Radius: 5,000 miles at 20 kts.
Complement: 1,050

General
Irian was transferred from the U.S.S.R. to Indonesia where she arrived in Oct. 1962. Pennant No. 201. A second Soviet cruiser was to have been acquired by the end of 1963, according to the Indonesian (then) Deputy Chief of Naval Staff. She was being modified to suit Indonesian requirements and conditions in the equatorial climate, and her armament was to be different from that of her sister ship. But in fact only one "Sverdlov" class cruiser had been transferred from the U.S.S.R. to Indonesia by 1965.

DESTROYERS



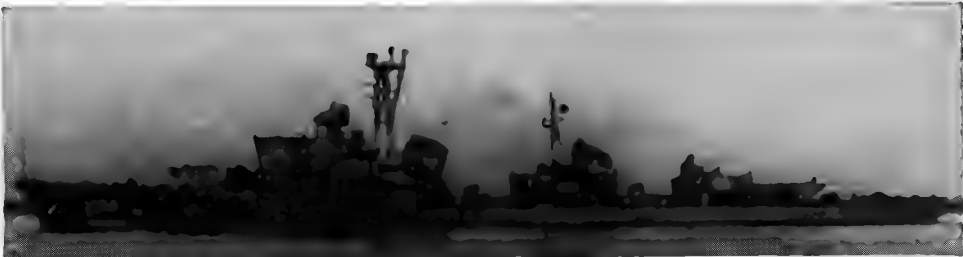
SILIWANGI 1963. Indonesian Navy, Official

7 Ex-U.S.S.R. "Skoryi" Class

BRAWIDAJA
DIPONEGORO
ISKANDARMUDA

SANDJAJA
SAWUNGGALING
SILIWANGI
SINGAMANGARADJA

Displacement: 2,600 tons standard (3,500 tons full load)
Dimensions: 393½ (pp.), 420 (o.a.)×41×13½ feet
Guns: 4—5.1 inch (twin), 2—3 inch AA., 7—37 mm. AA. (Some have 8—37 mm. AA. in twin mounts).
Tubes: 10—21 inch
A/S weapons: 4 D.C.T.
Mines: 80
Machinery: Geared turbines. 2 shafts. S.H.P.: 70,000=38 kts.
Boilers: 3
Radius: 4,000 miles at 15 kts.
Complement: 250



SANDJAJA 1961, Indonesian Navy, Official

203, 204, 201 and 202, respectively. Pennant No. of Singamangaradja (which means Gannet) was reported in 1963 as 302. Sawunggaling was originally named Sorwadjala. Iskandarmuda was transferred in 1962 and Brawidajaja and Diponegoro in 1964.

General
Former Soviet destroyers of the "Skoryi" type. Built in 1951-56. Four were purchased from Poland and transferred to the Indonesian Navy in 1959. Pennant Nos.

Disposal
Gadjah-Mada (ex-Tjerk Hiddes, ex-Nonpareil) a destroyer of the British "N" class, purchased from Great Britain by the Netherlands in 1941, and transferred from the Royal Netherlands Navy to the Indonesian Navy on 1 Mar. 1951, was reported scrapped in 1961.

FRIGATES

7 Ex-U.S.S.R. "Riga" Class

405	406
Displacement:	1,200 tons standard (1,600 tons full load)
Dimensions:	278½ (pp.), 295 (o.a.)×34½×9½ (mean), 11 (max.) feet
Guns:	3—3.9 inch d.p. (single), 4—37 mm. AA.
Tubes:	3—21 inch
A/S weapons:	4 depth charge projectors
Mines:	Fitted with mine rails
Machinery:	Geared steam turbines, 2 shafts. S.H.P.: 25,000=28 kts.
Boilers:	2

General
Two "Riga" class frigates, pennant Nos. 405 and 406, were transferred from the U.S.S.R. to Indonesia with the cruiser *Irian* in Sep. 1962. Two more were transferred the following year and three more a year later.



RIGA Class
Sergei Romanov

2 "Surapati" Class (Light Destroyers)

Name:	IMAMBONDJOL	SURAPATI
Pennant No.:	250	251
Laid down:	8 Jan. 1956	Jan. 1956
Launched:	5 May 1956	5 May 1956
Completed:	19 May 1958	28 May 1958
Displacement:	1,150 tons standard (1,500 tons full load)	
Dimensions:	295½ (pp.), 325 (o.a.)×36×8½ feet	
Guns:	4—4 inch (102 mm.) 46 cal. AA. in two twin mounts, 6—30 mm. (3 twin), 6—20 mm. AA. (3 twin)	
Tubes	3—21 inch	
A/S weapons:	2 Hedgehogs, 4 D.C.T., 1 D.C. track	
Machinery:	2 sets Parsons geared turbines, 2 shafts. S.H.P.: 24,000=32 kts.	
Boilers:	2 Foster Wheeler	
Oil fuel:	350 tons	
Radius:	2,800 miles at 22 kts. (cruising speed)	
Complement:	200	



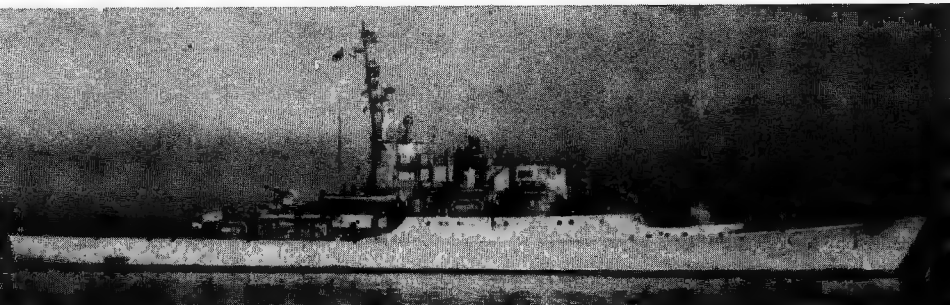
SURAPATI
1959, courtesy Ansaldo. Builders

General
Fast frigate or light destroyer type. Both built at Ansaldo Yard, Leghorn, Italy.

Photographs
A photograph of *Imambondjol* appears in the 1958-59 edition.

2 "Pattimura" Class (Escort Sloops)

Name:	PATTIMURA	HASANUDIN
Pennant No.:	252	253
Laid down:	8 Jan. 1956	8 Jan. 1956
Launched:	1 July 1956	24 Mar. 1957
Completed:	28 Jan. 1958	8 Mar. 1958
Displacement:	950 tons standard (1,200 tons full load)	
Dimensions:	246 (pp.), 270½ (o.a.)×34×9 feet	
Guns:	2—3 inch, 40 cal. AA., 2—30 mm. 70 cal. Hispano Suiza AA. (twin)	
A/S weapons:	2 Hedgehogs, 4 D.C.T., 1 D.C. track	
Machinery:	3 Ansaldo-Fiat diesels, 3 shafts. B.H.P.: 6,900=22 kts.	
Oil fuel:	100 tons	
Radius:	2,400 miles at 18 kts. (cruising speed)	
Complement:	110	



HASANUDIN
1963, Indonesian Navy, Official

General
Small sloop or fast corvette type. Both built at Ansaldo Yard, Leghorn, Italy.

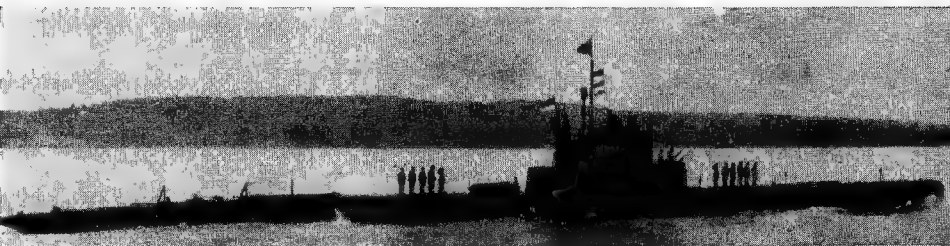
Photographs
A photograph of *Pattimura* appears in the 1958-59 to 1962-63 editions.

SUBMARINES

12 Ex-U.S.S.R. "W" Class

ALUGORO	NANGGALA	TJAKRA
Displacement:	1,030 tons (surface); 1,180 tons (submerged)	
Dimensions:	240 (o.a.)×22×15 (max.) feet	
Guns:	2—57 mm., 2—25 mm.	
Tubes:	6—21 inch (4 forward, 2 aft). 14 torpedoes carried	
Mines:	40 mines or 20 torpedoes	
Machinery:	Diesel-electric. Twin screws. Diesels, B.H.P.: 4,000=17 kts. (surface). Electric motors: H.P.: 2,500=15 kts. (submerged)	
Radius:	13,000 to 16,500 miles	
Complement:	60	

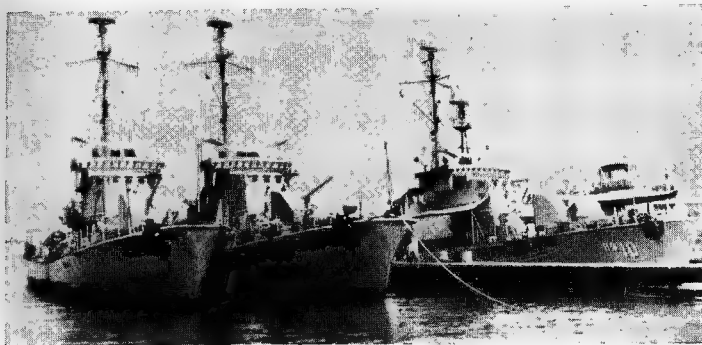
General
Former Soviet submarines of the medium sized, long range "W" class. *Nanggala* and *Tjakra* were purchased from Poland and transferred to the Indonesian Navy in Aug. 1959. *Nanggala* was overhauled at Surabaya in Aug. 1959. Pennant Nos. 402 and 401, respectively. *Alugoro*: Pennant No. 512.



TJAKRA
1961, Indonesian Navy, Official

The four Soviet submarines of the "W" class, which arrived in Indonesia on 28 June 1962, brought the total number of this class transferred to Indonesia by the U.S.S.R. to 14 units, but it is reported that only six will be maintained operational, while six are kept in reserve and two used for spare parts.

PATROL VESSELS

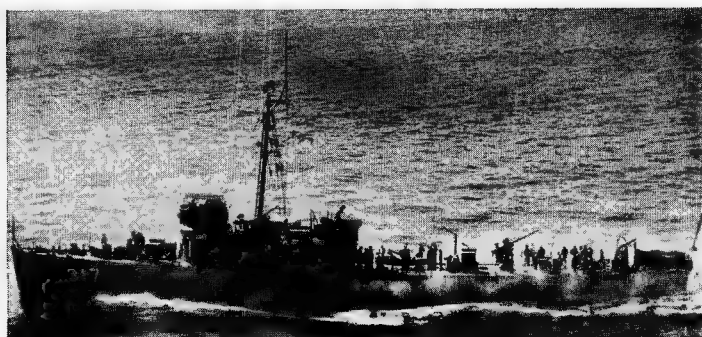


"Kronstadt" Class 1961, Indonesian Navy, Official

8 Ex-U.S.S.R. "Kronstadt" Class Submarine Chasers

KATULA LADJURA	LAPAI LUMBA-LUMBA	MADIDIHANG MOMAKE	TJUTJUT TONGKOL
Displacement:	300 tons		
Dimensions:	167½×19½×9 feet		
Guns:	1—3.9 inch, 2—37 mm. AA., 3—20 mm. AA.		
A/S weapons:	Depth bomb projectors		
Mines:	Fitted for laying		
Machinery:	Diesels. 2 shafts. B.H.P.: 27 kts.		
Oil fuel:	20 tons		
Complement:	40		

General
Former Soviet patrol vessels or submarine chasers of the "Kronstadt" type. Built in 1951-1954. Transferred to the Indonesian Navy on 30 Dec. 1958. Pennant Nos. 301 to 308.



TORANI 1961, Indonesian Navy, Official

4 Ex-U.S. PC Type Submarine Chasers

HUI (ex-U.S.S. Malvern, PC 580)	TIKALANG (ex-U.S.S. Pierre, PC 1141)
TENGIRI (ex-U.S.S. PC 1183)	TORANI (ex-U.S.S. Manville, PC 581)
Displacement:	280 tons standard (450 tons full load)
Dimensions:	170 (w.l.), 173½ (o.a.) × 23 × 7½ (mean), 10½ (max.) feet
Guns:	1—3 inch, 1—40 mm. AA., 2—20 mm. AA., 4 D.C.T.
Machinery:	2 G.M. diesels, 2 shafts. B.H.P.: 2,880=20 kts.
Oil fuel:	60 tons
Radius:	5,000 miles at 10 kts.
Complement:	54 (4 officers, 50 men)

General
Former American submarine chasers of the steel-hulled PC type. *Pierre* was transferred from the U.S. Navy at Pearl Harbour, Hawaii, in Oct. 1958 and renamed *Tikalang*. *Malvern* and *Manville* were transferred by the U.S.A. under the Mutual Defense Assistance Program in Mar. 1960 and renamed *Hui* and *Torani*, respectively. Pennant Nos. 318, 309, 313 and 317, respectively.

Name	Builders	Laid down	Launched	Completed
Hui	Albina E. & M. Works, Portland, Ore.	22 Jan. 42	29 Apr. 42	26 Sep. 42
Tengiri	Gibbs Gas Engine Co., Jacksonville, Fla.	27 Oct. 42	7 July 43	7 Dec. 43
Tikalang	Defoe S.B. Corp., Bay City, Mich.	12 Mar. 43	22 June 43	28 Dec. 43
Torani	Albina E. & M. Works, Portland, Ore.	12 Feb. 42	8 July 42	9 Oct. 42

Disposals
Alu-Alu (ex-U.S.S. PC 787) was officially removed from the effective list in 1961

CORVETTES

3 "Banteng" Class (Ocean Minesweepers)

BANTENG (ex-Ambon, ex-H.M.A.S. Cairns, 7 Oct. 1941)	PATI UNUS (ex-Tidore, ex-H.M.A.S. Tamworth, 14 Mar. 1942)	RADJAWALI (ex-Banda, ex-H.M.A.S. Wollongong, 5 July 1941)
Displacement:	815 tons standard (1,025 tons full load)	
Dimensions:	162 (pp.), 186 (o.a.) × 31 × 8½ feet	
Guns:	1—4 inch, 1—40 mm. AA., 4—20 mm. AA.	
Machinery:	Triple expansion. 2 shafts. I.H.P.: 2,000=15.5 kts.	
Boilers:	2, of 3-drum type	
Oil fuel:	170 tons	
Radius:	4,300 miles at 10 kts.	
Complement:	56 to 70	

General
All built in Australia as ocean minesweepers, *Banteng* and *Pati Unus* by Walkers, Maryborough, *Hang Tuah* by Evans Deakin, Brisbane, and *Radjawali* by Cockatoo Docks and Eng. Co. Launch dates above. *Hang Tuah* and *Pati Unus* were transferred from the Royal Netherlands Navy on 28 Dec. 1949. *Banteng* and *Radjawali* on 6 Apr. 1950. *Hang Tuah* (ex-Morotai, ex-Ipswich) was reported to have been sunk by rebel planes off Balikpapan, East Borneo, on 28 Apr. 1958. *Pati Unus* has been removed from the fleet and transferred to the Training Establishment as training ship for ratings. Pennant Nos.: 254 (*Radjawali*), 255 (*Banteng*) and 256 (*Pati Unus*). A photograph of *Radjawali* appears in the 1955-56 to 1960-61 editions.

MOTOR TORPEDO BOATS



SINGA 1961, Indonesian Navy, Official

7 German-Built "Jaguar" Type

ADJAK ANOVA	BIRUANG HARIMAU	MADJAN KUMBANG	SERIGALA SINGA
Displacement:	150 tons		
Dimensions:	131 (pp.), 138 (o.a.) × 25 × 5 feet		
Guns:	2—40 mm. AA. (single)		
Tubes:	4—21 inch		
Machinery:	4 Daimler-Benz diesels. 4 shafts. B.H.P.: 12,000=		
Complement:	40-42 kts.		

General
Built to the order of the Indonesian Navy by the German yard Fr. Lürssen, Bremen-Vegesack in 1959-60. Fast patrol boats similar to the motor torpedo boats or *schnell-boote* of the "Jaguar" class in the West German Navy (*Bundesmarine*). The first four boats had wooden hulls, but the second four were built of steel. Pennant Nos. 601, 602, 603, 604, 605, 606, 607 and 608. A photograph of *Harimau* appears in the 1960-61 edition (page 434 Addenda).

Loss
The motor torpedo boat *Matjan Tutul* of this class was reported to have been sunk in an engagement with Netherlands forces off West New Guinea on 15 Jan. 1962.

24 Ex-U.S.S.R. "P 6" Class

ANGIN KUMBANG	
Displacement:	75 tons <i>standard</i> (100 tons <i>full load</i>)
Dimensions:	88×21×5½ feet
Guns:	4—25 mm. AA. (two twin)
Tubes:	2—21 inch (two single)
Machinery:	Speed=45 kts. approx. (<i>max.</i>)

General
Former Soviet fleet minesweepers of the "P 6" class. A total of 24 are reported to have been delivered since 1961, including eight in 1961, and six in 1962. Only one name, *Angin Kumbang*, pennant No. 1613, has been notified. The eight motor torpedo boats delivered in Aug-Sep. 1961 formed Indonesia's Second Torpedo Boat Squadron.

FLEET MINESWEEPERS

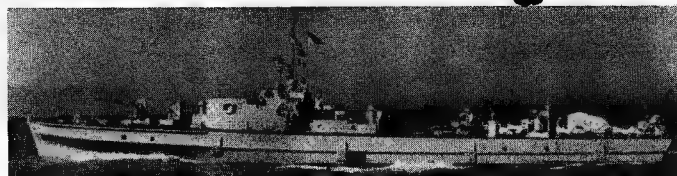
6 Ex-U.S.S.R. "T 43" Class

Displacement:	500 tons standard (600 tons full load)
Dimensions:	200×27½×9 feet
Guns:	4—37 mm. AA.; 8—13 mm. AA.
Machinery:	Diesels. 2 shafts. Speed=17 kts.

General
Former Soviet fleet minesweepers of the "T 43" type transferred to Indonesia by the U.S.S.R., four in 1962 and two in 1964.

On 27 Feb. 1959 Indonesia announced she would acquire from the U.S.A. two minesweepers to be used as patrol craft.

COASTAL MINESWEEPERS



PALAU ROTI 1955, Indonesian Navy, Official

10 "R" Class (Raum-boats)

PALAU RAAS 503	PALAU REMPANG 508	PALAU ROMA 502
PALAU RANGSANG 506	PALAU RENGAT 509	PALAU ROTI 504
PALAU RAU 501	PALAU RINDJA 507	PALAU RUPAT 505
		PALAU RUSA 510

Displacement:	139.4 tons standard
Dimensions:	129 × 18½ × 5 feet
Guns:	1—40 mm. AA., 2—20 mm. AA.
Machinery:	2 M.A.N. diesels, 12 cyl. (V motor type)
B.H.P.:	2,800=24.6 kts.
Complement:	26

General
Built in Germany by Abeking & Rasmussen Yacht-und Bootswerft, Lemwerder I.O. in 1945-57. These boats have a framework of light metal covered with wood. Pennant numbers against names above. Pennant No. of *Palau Raas* was reported in 1963 as 1203.

DJAMPEA	DJOMBANG	ENGGANO (ex-Hino Maru)	FLORES
Displacement:	175 tons		
Dimensions:	106½ (pp.), 113½ (Flores 114½ (o.a.) × 18½ × 6½ feet		
Machinery:	1 Enterprise diesel. B.H.P.: 360=12.5 kts.		

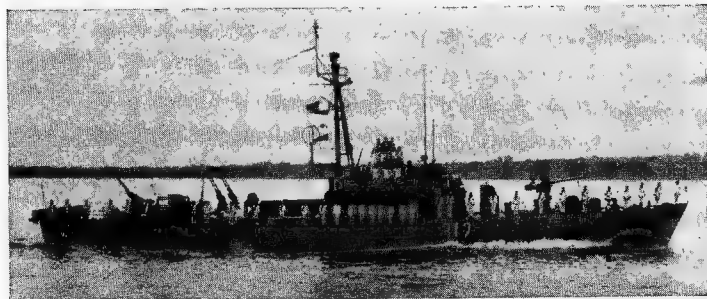
General
First three were commissioned in 1941. *Flores* was completed by the Japanese during the occupation of Java. First two were built at Droogdijk Maatschappij, and the other two at Droogdijk Mij, Tandjong Priok. Used as auxiliary minesweepers by the Royal Netherlands Navy. *Enggano* was re-named by Japanese. These ships were recovered after the war.

1 Ex-U.S.S.R. "T 301" Class

Displacement:	130 tons
Dimensions:	100×16×4½ feet
Guns:	2—37 mm. AA.
Machinery:	Diesels. B.H.P.: 480=10 kts.

General
Former Soviet inshore minesweeper of the "T 301" type reported to have been transferred from the U.S.S.R. to Indonesia in 1962.

PATROL BOATS



LAJANG

1961, Indonesian Navy, Official

6 Ex-Yugoslavian "Kraljevica" Class Submarine Chasers

BUBARA
DORANG

Displacement:
Dimensions:
Guns:
A/S weapons:
Machinery:
Oil fuel:
Radius:
Complement:

IAJANG
KRAPU

190 tons standard (245 tons full load)
134½×20½×7 feet
1—3 inch, 1—40 mm. AA., 6—20 mm. AA.
D.C.
2 M.A.N. diesels. 2 shafts. B.H.P.: 3,300=20 kts.
15 tons
1,500 miles at 12 kts.
54

LEMADANG
TODAK

General

Former Yugoslavian patrol boats of the "Kraljevica" or "PBR 500 class. Purchased from Yugoslavia and transferred to the Indonesian Navy on 27th Dec. 1958. Pennant Nos. 310 to 312 and 314 to 316.

5 "Mawar" Class Submarine Chasers

New Construction

Indonesia is reported to be building five submarine chasers of the "Mawar" class in her own yards.

MOTOR GUNBOATS

12 Ex-U.S.S.R. "Komar" Class Guided Missile Patrol Boats

Displacement: 75 tons standard (100 tons full load)
Dimensions: 88×21×5½ feet
Guided weapons: 2 launchers in twin housing with missiles of 10 to 15 nautical miles range
Machinery: Speed=40 kts.

General

Former Soviet guided missile patrol boats of the "Komar" class. Six were transferred to Indonesia in 1961-63, four more in Sep. 1964 and two in 1965.

18 Ex-U.S.S.R. "BK IV" Class

General

Reported to have been transferred from the U.S.S.R. to Indonesia in 1962. Fitted with large gun mounting.
Ten Soviet-built gunboats are reported to have been transferred to Indonesia at Djakarta 11 Oct. 1961.

3 U.S. PGM Type

PGM 55

Displacement: 100 tons
Dimensions: Length: 95 feet
Guns: 1—40 mm. AA.
Machinery: Speed 16 kts.

PGM 56

PGM 57

General

Built in the United States to a PGM type motor gunboat design for transfer to Indonesia under the Military Aid Programme.

SEAWARD DEFENCE CRAFT

25 Ex-HDML Patrol Boat Types

PP 01	PP 06	PP 011	PP 016	PP 021
PP 02	PP 07	PP 012	PP 017	PP 022
PP 03	PP 08	PP 013	PP 018	PP 023
PP 04	PP 09	PP 014	PP 019	PP 024
PP 05	PP 10	PP 015	PP 020	PP 025

Displacement: 46 tons standard (54 tons full load)
Dimensions: 72×16×5½ feet
Guns: 1—37 mm., 2—20 mm. Oerlikon M.G.
Machinery: 2 diesels. 2 shafts. B.H.P.: 300=11 kts.
Complement: 10

General

All ex-Netherlands patrol boats. Built in 1943-46. Formerly British HDML type RP 109, RP 111, RP 112, RP 114 and RP 118 ex-HDML 1451, HDML 1472, HDML 1473, HDML 1454 and HDML 1449).

Displacement: 44 tons standard (56 tons full load)
Dimensions: 62 (o.a.)×18½×4 feet
Guns: 1—20 mm. AA., 1 M.G.
Machinery: 1 diesel. B.H.P.: 165=10 kts.
Complement: 10

General

Built in 1945-46. Former American Higgins type motor launches, later Netherlands RP 120, RP 121, RP 122, RP 125, RP 127, RP 128, RP 130, RP 134 and RP 136, transferred to Indonesia in 1950.

Displacement: 54 tons
Guns: 1—40 mm. AA., 2—20 mm. AA.
A/S weapons: 2 D.C.T.
Machinery: Speed=11 kts.
Complement: 10

General

Former Netherlands motor launch RP 138, transferred by the Royal Netherlands Navy in 1950. A photograph of this type appears in the 1951-52 to 1960-61 editions.

SUBMARINE SUPPORT SHIPS



MULTATULI

1962, Indonesian Navy, Official

MULTATULI

Displacement: 3,220 tons
Dimensions: 338 (pp.), 365½ (o.a.)×52½×23 feet
Guns: 1—85 mm., 4—40 mm. (single mountings)
Machinery: B. & W. diesel. B.H.P.: 5,500=18½ kts. (max.), 16 kts. cruising
Oil fuel: 1,400 tons
Radius: 6,000 miles at 16 kts.
Complement: 134

General

Built in Japan by Ishikawajima-Harima Heavy Industries Co. Ltd., as a submarine tender. Launched on 15 May 1961. Delivered to Indonesia in Aug. 1961. Pennant No. 476. Flush decker. Capacity for replenishment at sea (fuel oil, fresh water, provisions, ammunition, naval stores and personnel). Medical and hospital facilities. Equipment for supplying compressed air, electric power and distilled water to submarines. Air conditioning and mechanical ventilation arrangements for all living and working quarters.

1 Ex-U.S.S.R. "Don" Class

RATULANGI

Displacement: 4,750 tons standard (6,000 tons full load)
Dimensions: 450×49×17 feet
Guns: 4—3.9 inch, 12—37 mm. AA.
Machinery: Diesels. Speed=21 kts. (approx.)
Complement: 300

General

A submarine support ship, escort vessel and maintenance tender of the "Don" class, transferred from the U.S.S.R. to Indonesia in 1962, arriving in Indonesia in July with Soviet pennant No. 441.

1 Ex-U.S.S.R. "Atrek" Class

THAMRIN

Displacement: 3,500 tons standard
Measurement: 3,258 tons gross
Dimensions: 336×49×20 feet
Machinery: Triple expansion and exhaust turbine. I.H.P.: 2,450=13 kts.
Boilers: 2
Radius: 3,500 miles

General

Former Soviet advanced submarine parent ship of the smaller tender type. Built in 1955-57 and converted to naval use from a mercantile freighter. Arrived in Indonesia on 28 June 1962 as a transfer from the U.S.S.R. "Atrek" class.

TRAINING SHIPS

NANUSA

Displacement: 14,320 tons
Dimensions: 441½×58½×26½ feet
Guns: 1—3 inch, 1—40 mm., 2—37 mm., 4—20 mm., 6—12.7 mm. M.G.
Machinery: Triple expansion. 1 shaft. I.H.P.: 2,800=9 kts.
Boilers: 3
Complement: 100 (accommodation for 350 ratings under training)

General

Transferred to the Indonesian Navy in 1958. A converted freighter.

DEWARUTJI

Displacement: 810 tons standard (1,500 tons full load)
Dimensions: 191½ (o.a.), 136½ (pp.)×31½×13½ feet
Machinery: M.A.N. diesel engine. B.H.P.: 600=10.5 kts.
Complement: 110 (32+78 midshipmen)

General

Training ship for Indonesian Navy, built in Germany by H. C. Stülcken & Sohn, Hamburg. Launched on 24 Jan. 1953. Completed on 9 July 1953. Barquentine of iron construction. Sail area, 1,305 sq. yds. (1,091 sq. metres). Speed with sails 12.8 kts. A photograph of this ship appears in the 1954-55 to 1960-61 editions.

SURVEYING VESSELS

BURDIAMHAL

Displacement: 1,200 tons
Dimensions: 211½ (o.a.), 192 (pp.)×33½×10 feet
Machinery: 2 Werkspoor diesel engines. B.H.P.: 1,160=10 kts.
Complement: 90

General

Built by Scheepswerf De Waal, Zalthomme. Launched on 6 Sep. 1952. Completed on 6 July 1953. A photograph of this ship appears in the 1954-55 to 1960-61 editions.

SAMUDERA

Measurement: 200 tons gross
Dimensions: 125½×21½×9½ feet
Machinery: Werkspoor diesel engine. B.H.P.: 450

General

Built by Ferus Smit, Foxol. Launched on 28 May 1952. Completed on 28 Aug. 1952. Same type as "Bango" class motor patrol vessels, equipped as a laboratory ship. Used for deep sea exploration in Indonesian waters. A photograph of this vessel appears in the 1953-54 to 1960-61 editions.

LANDING SHIPS



TELUK LANGSA 1961, Indonesian Navy, Official

6 Ex-U.S. LST "511-1152" Type

TANDJUNG NUSANIE, LST 1 (ex-U.S.S. *Lawrence County*, LST 887)
TANDJUNG RADJA, LST 2 (ex-U.S.S. *Russell County* LST 1090)
TELUK BAYUR, LST 870 (ex-U.S.S. LST 616)
TELUK KAU, LST 871 (ex-U.S.S. LST 652)
TELUK LANGSA, LST 869 (ex-U.S.S. *Solano County*, LST 1128)
TELUK MENADO, LST 872 (ex-U.S.S. LST 657)

Displacement: 1,653 tons standard (4,080 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×14 feet
Guns: 7—40 mm. AA., 2—20 mm. AA.
Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,700=11.6 kts.
Oil fuel: 600 tons
Radius: 7,200 miles at 10 kts.
Guided weapons: 2,100 tons
Complement: 119 (accommodation for 266)

General
Former U.S. tank landing ships of the 511-1152 series. *Teluk Langsa* was transferred to Indonesia by the United States under the Mutual Defense Assistance Program at Seattle, Washington, on 31 Mar. 1960. (Indonesia announced that she was to acquire this ship from the United States on 27 Feb. 1959). *Tandjung Nusanie* and *Tandjung Radja* were transferred on 27 Dec. 1960, and *Teluk Bayur*, *Teluk Kau* and *Teluk Menado* on 17 June 1961.

1 Japanese Type

TELUK AMBOINA, LST 869

Displacement: 2,200 tons standard (4,800 tons full load)
Dimensions: 327×50×15 feet
Guns: 2—85 mm., 4—40 mm.
Machinery: MAN diesels, 2 shafts. B.H.P.: 3,000=13.1 kts.
Oil fuel: 1,200 tons
Radius: 4,000 miles at 13.1 kts.
Complement: 88 (accommodation for 300)

General
Built in Japan. Launched on 17 Mar. 1961 and transferred to the Indonesian Navy in June 1961.

LANDING CRAFT



AMAHAI 1961, Indonesian Navy, Official

3 Ex-U.S. LCI Type

AMAHAI (ex-*Tropenvogel*, LCI 467) **MARICH** (ex-*Zeemeeuw*)
PIRU (ex-*Zeearend*, LCI 420)

Displacement: 250 tons standard (381 tons full load)
Dimensions: 158×23×7 feet
Guns: 1—37 mm., 2 Vickers M.G.
Machinery: G.M. (Super High Speed Diesel). B.H.P.: 1,800=15 kts.
Complement: 60

General
Former United States infantry landing craft. Turned over from the Netherlands East Indies Government on the formation of the Indonesian Navy in 1950. Another photograph appears in the 1951-52 to 1957-58 editions. Pennant Nos. 864, 866 and 868, respectively. Sister ships *Baruna* (ex-*Jysvogel*, LCI 948) and *Namlea* (ex-*Stormvogel*) LCI 588, were removed from the effective list and used as pilot ship and light ship, it was officially stated in 1961.

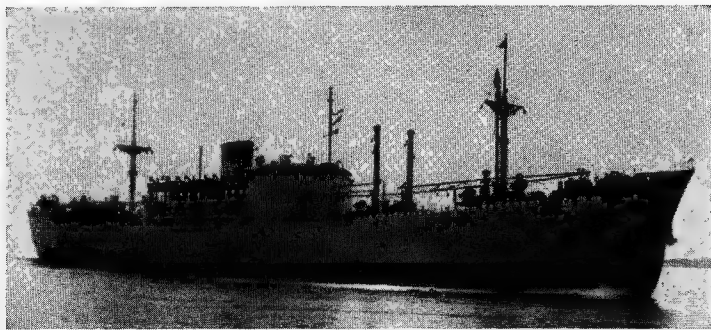
4 Ex-Yugoslavian LCT Type

TELUKKATURAI **TELUKWADJO** **TELUKWEDA** **TELUKWORI**

Displacement: 110 tons standard (250 tons full load)
Dimensions: 166×21½×5½ feet
Guns: 1—40 mm., 2—20 mm.
Machinery: HSA Sweuse diesel, 2 shafts. B.H.P.: 375=7 kts.
Oil fuel: 6 tons
Complement: 15

General
Transferred from Yugoslavia to the Indonesian Navy on 1 Nov. 1958. Pennant Nos. 862, 860, 861 and 863, respectively.

TRANSPORTS



MOROTAI

1961, Indonesian Navy, Official

HALMAHERA (ex-*Bau Masepe*) **MOROTAI** (ex-*Sawega*)

Displacement: 5,614 tons standard (4,830 tons full load)
Dimensions: 435½×58×12½ feet
Guns: 1—3 inch, 4—40 mm., 4—20 mm.
Machinery: B. & W. diesel, B.H.P.: 4,600=12 kts.
Oil fuel: 990 tons
Complement: 116

General
Transferred to the Indonesian Navy on 23 Nov. 1957. Pennant Nos. 921 and 922.

BANGGAI (ex-*Biscaya*) **NUSA TELU** (ex-*Casa Blanca*)

Measurement: 750 tons
Dimensions: 168×27½×7½ feet

General
Dual purpose troop and cargo ships. Renamed in 1961. Pennant Nos. 925, 924.

AUXILIARY PATROL CRAFT

DKN 901 **DKN 902** **DKN 903** **DKN 904** **DKN 905** **DKN 906** **DKN 908** **DKN 911**

Displacement: 140 tons
Dimensions: 128×19×5½ feet
Guns: 4—20 mm. AA.
Machinery: Maybach diesels, 2 shafts. B.H.P.: 3,000=24.5 kts.

General
Coastal minesweepers used also as patrol craft and police boats. Projected as a class of ten units. 901-906 were built in Germany in 1958-59, three by Lürssen, Vegesack and three by Abeking & Rasmussen, Lemwerder.

KELABANG
General
147-ton, 21-knot patrol craft launched on 22 Aug. 1960 at Surabaya. Powered with West German built engines. A sister ship was to be built.

6 "Pat" Class

PAT 01 **PAT 02** **PAT 03** **PAT 04** **PAT 05** **PAT 06**

Dimensions: 91½ (pp.), 100 (o.a.)×17×6 feet
Machinery: 2 Caterpillar diesels. B.H.P.: 340

6 "Balam" Class

BALAM **BARAU** **BEKAKA** **BELATIK** **BENDALU** **BOGA**

Measurement: 200 tons gross
Dimensions: 125½ (o.a.)×21½×6½ feet
Machinery: Werkspoor diesel engine. B.H.P.: 400-430=11 kts.

General
All launched in 1953. *Balam* and others were commissioned for service in 1953.

7 "Bango" Class

BANGO **BABUT** **BEO** **BETTET** **BIDO** **BLEKOK** **BLIBIS**

Measurement: 194 tons gross
Dimensions: 120½ (pp.), 125½ (o.a.)×21½×6½ feet
Machinery: Werkspoor diesel engine. B.H.P.: 430=11 kts.

General
All launched in 1952. A photograph of Bettet appears in the 1953-54 to 1960-61 editions.

7 "Durian" Class

DAIK **DAGONG** **DAMARA** **DATA** **DUATA** **DUKU** **DURIAN**

Displacement: 90 tons
Dimensions: 78½×16×6½ feet
Machinery: Caterpillar diesel. B.H.P.: 190

General
All launched in 1952.

12 "Alkai" Class

ALKAI **ALULU** **AMPIS** **ANKANG** **ANTANG** **ARYAT**
ALLAP **AMPOK** **ANDIS** **ANKLOENG** **AROKWES** **ATTAT**

Displacement: 143 tons (247 tons full load)
Dimensions: 124½×18½×5½ feet
Guns: 1—37 mm. AA. 4 M.G.
Machinery: Enterprise diesel engine. B.H.P.: 400-450=12 kts.
Complement: 20

General
Built in the Netherlands. Ampok and Alkai were shipped to Indonesia on 17 Mar. 1950.

3 Ex-U.S. SC Type

BHAYAMKARA I **BHAYAMKARA II** **BHAYAMKARA III**

Displacement: 116 tons (148 tons full load)
Dimensions: 107½ (w.l.), 110½ (o.a.)×17×6½ feet
Machinery: Diesel. B.H.P.: 800=15.5 kts.

General
Former United States submarine chasers of the 110 ft. SC type. Refitted by Korody Marine Corporation. Operated by the Indonesian Marine Police. A photograph of this type appears in the 1954-55 to 1960-61 editions.

MERABU (ex-*Merbaboe*) **RINDJANI**

Displacement: 80 tons
Dimensions: 74½×14½×5 feet
Machinery: Diesel. B.H.P.: 135=10 kts.
Complement: 20

General
Diampea, launched in 1940, is reported to have been renamed (113 tons gross, 130½×18½×6½ feet, diesel machinery, B.H.P.: 360=10 kts., crew 10).

OILERS



SAMBU

1961, Indonesian Navy, Official

2 Ex-U.S.S.R. Type

BUNJU

Displacement: 2,170 tons standard (6,170 tons full load)
 Dimensions: $350\frac{1}{2} \times 49\frac{1}{2} \times 20\frac{1}{2}$ feet
 Guns: 2—20 mm.
 Machinery: Polar diesel, 1 shaft. B.H.P.: 2,650=10 kts.
 Oil fuel: 390 tons
 Cargo capacity: 4,739 tons
 Machinery: 71

General

Former Russian tankers transferred to the Indonesian Navy on 29 June 1959. Pennant Nos. 904 and 903.

TJEPU (ex-Scandus, ex-Nordhem)

Displacement: 1,372 tons
 Measurement: 1,042 tons gross
 Dimensions: $226\frac{1}{2} \times 34 \times 14\frac{1}{2}$ feet
 Machinery: Polar diesel, 1 shaft. B.H.P.: 850=11 kts.

General

Built in Sweden in 1949. Acquired in 1951. Pennant No. 901

PLADJU

Displacement: 1,412 tons standard (4,062 tons full load)
 Dimensions: $294\frac{1}{2} \times 42\frac{1}{2} \times 15\frac{1}{2}$ feet
 Guns: 2—20 mm.
 Machinery: Compound engines. I.H.P.: 1,700=10 kts.
 Oil fuel: 449 tons
 Cargo capacity: 3,132 tons
 Complement: 70

General

Purchased from Singapore in 1958. Pennant No. 902.

LIGHTHOUSE TENDER

BIDUK

Displacement: 1,250 tons standard
 Dimensions: $213\frac{1}{2} \text{ (o.a.)} \times 39\frac{1}{2} \times 11\frac{1}{2}$ feet
 Machinery: 1 Triple expansion engine. I.H.P.: 1,600=12 kts.
 Complement: 66

General

Lighthouse Tender, Cable Layer, and multi-purpose naval auxiliary. Built by J. & K. Smit, Kinderijk. Launched on 30 Oct. 1951. Completed on 30 July 1952. A photograph of this ship appears in the 1953-54 to 1960-61 editions.

SALVAGE VESSEL

TRITON (ex-Mutsunoura Maru)

Displacement: 384 tons
 Measurement: 383 tons gross
 Dimensions: $182\frac{1}{2} \times 30 \times 15$ feet
 Machinery: Triple expansion reciprocating. I.H.P.: 700=7 kts.
 Complement: 43

General

Former Japanese vessel renamed. Launched in 1941. Pennant No. 926.

TUGS

RAKATA (ex-U.S.S. Menominee, ATF 73)

Displacement: 1,235 tons standard (1,675 tons full load)
 Dimensions: 195 (w.l.), 205 (o.a.) $\times 38\frac{1}{2} \times 15\frac{1}{2}$ (max.) feet
 Guns: 1—3 inch, 4—40 mm. AA., 2—20 mm. AA.
 Machinery: 4 sets of diesels with electric drive. B.H.P.: 3,000=16.5 kts.
 Complement: 85

General

Former American fleet ocean tug of the "Apache" class. Launched on 14 Feb. 1942. Transferred from the United States Navy to the Indonesian Navy at San Diego in Mar. 1961. Pennant No. 928.

LAMPO BATANG

Displacement: 250 tons
 Dimensions: $92\frac{1}{2} \text{ (o.a.)}, 86\frac{1}{2} \text{ (pp.)} \times 23\frac{1}{2} \times 11\frac{1}{2}$ feet
 Machinery: 2 sets diesels. B.H.P.: 1,200=11 kts.
 Oil fuel: 18 tons
 Radius: 1,000 miles at 11 kts.
 Complement: 43

General

Ocean tug. Built in Japan. Launched in April 1961. Delivered in Nov. 1961. Pennant No. 934.

GANDENG

Measurement: 610 tons gross
 Machinery: Speed=7.5 kts.

General

Launched in 1940. Reported to have been given a new Indonesian name.

BROMO

Displacement: 150 tons
 Dimensions: $71\frac{1}{2} \text{ (w.l.)}, 79 \text{ (o.a.)} \times 21\frac{1}{2} \times 9\frac{1}{2}$ feet
 Machinery: MAN diesel, 2 shafts. B.H.P.: 600=10.5 kts.
 Oil fuel: 9 tons
 Radius: 690 miles at 10.5 kts.
 Complement: 15

General

Harbour tugs. Built in Japan. Launched in June 1961. Delivered in Aug. 1961. Pennant Nos. 936 and 935.

TAMBORA

IRAQ

SUBMARINE CHASERS

3 Ex-U.S.S.R. "S.O.I." Type

Displacement: 215 tons light, 220 tons normal
 Dimensions: $138 \text{ (o.a.)} \times 20 \times 7$ (mean), 10 (max.) feet
 Guns: 4—25 mm. AA.
 A/S weapons: 4 five-barrelled 9.5 inch (240 mm.) ahead-throwing rocket launchers
 Machinery: 3 diesels. B.H.P.: 3,500=25 kts.

General

Former Soviet submarine chasers of the "S.O.I." class delivered by the U.S.S.R. to Iraq in 1962.

MOTOR TORPEDO BOATS

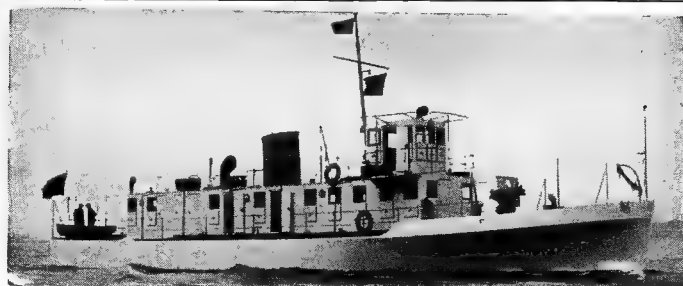
12 Ex-U.S.S.R. "P 6" Type

Displacement: 50 tons
 Dimensions: $82 \times 20 \times 6$ feet
 Guns: 4—13 mm. AA. M.G.
 Tubes: 2—21 inch
 Machinery: Speed=40 kts.

General

Presented by the U.S.S.R. A total of twelve "P-6" class motor torpedo boats have been delivered by the U.S.S.R. to Iraq, of which two were received in 1959, four in Nov. 1960, and six in Jan. 1961. Some remain non-operational. Six small patrol boats are also reported to have been delivered by the U.S.S.R.

PATROL BOATS



No. 1 courtesy John I. Thornycroft & Co. Ltd., Southampton, Builders

No. 1 Displacement: 67 tons
 Dimensions: $100 \times 17 \times 3$ feet (mean)
 Guns: 1—3.7 inch howitzer, 2—3 inch mortars, 4 M.G.
 Machinery: 2 Thornycroft diesels, 2 shafts. B.H.P.: 280=12 kts.

General

Protected by bullet-proof plating. All built by John I. Thornycroft & Co. Ltd., Woolston, Southampton. All launched, completed and delivered in 1937.

Local Boats

Eight patrol boats of 36 feet in length with a diesel of 125 B.H.P. and four 21 ft. pilot dispatch launches with a diesel of 40 B.H.P. were built by John I. Thornycroft & Co. for the Iraqi Ports Administration.

LIGHTHOUSE TENDER

FAISAL 1 (ex-Sans Peur, ex-Restless)

Displacement: 1,025 tons
 Dimensions: $186 \times 29\frac{1}{2} \times 14\frac{1}{2}$ feet
 Machinery: Triple expansion, 2 shafts. I.H.P.: 850=13 kts.
 Boiler: 1 oil-fired

General

Former Royal Yacht. Designed by Messrs. G. L. Watson Ltd. Built by John Brown & Co. Ltd., Clydebank. Launched in 1923. A photograph appears in the 1937 to 1959-60 editions.

PRESIDENTIAL YACHT



AL THAWRA

1958, Captain Aldo Fraccaroli

AL THAWRA (ex-Melike Aliye)

Displacement: 746 tons
 Machinery: Diesels, 2 shafts. S.H.P.: 1,800=14 kts.

General

This ship was acquired for use as the Royal Yacht before the assassination of King Faisal II in 1958, after which she was renamed Al Thawra (The Revolution) instead of Melike Aliye (Queen Aliyah).

TUG

ALARM (ex-St. Ewe)

Displacement: 570 tons standard (820 tons full load)
 Dimensions: $135 \times 30 \times 14\frac{1}{2}$ feet
 Machinery: Triple expansion, 1 shaft. I.H.P.: 1,200=12 kts.
 Boilers: 2 oil-fired

General

Former British "Rescue" type tug of the "Saint" class. Built by Murdock & Murray. Launched in 1919.

IRAN (PERSIA)

Chief of Staff, Imperial Iranian Navy:
Vice-Admiral Houshang Afkhami.

Naval, Military and Air Attaché in London:
Colonel G. H. Aghakhani Afshar.

Naval, Military and Air Attaché in Washington:
Lieutenant Colonel Abbas Eshraghi.

FRIGATE

1 Ex-British "Loch" Type

BABR (ex-H.M.S. Derby Haven, ex-Loch Assynt)

Builders: Swan, Hunter & Wigham Richardson, Ltd., Wallsend-on-Tyne
Laid down: 11 Feb. 1944
Launched: 14 Dec. 1944
Completed: 2 Aug. 1945
Displacement: 1,650 tons standard (2,160 tons full load)
Dimensions: 309x38x14 1/2 (max.) feet
Guns: 2-4 inch, 4-40 mm. AA.
Machinery: Triple expansion, 2 shafts, I.H.P.: 5,500=19.5 kts.
Boilers: 2 Admiralty 3-drum type
Oil fuel: 725 tons
Radius: 9,500 miles at 12 kts.
Complement: 140

General Modified "Loch" class frigate acquired from Great Britain in 1949. "Babr" means "Panther."



BABR

Imperial Iranian Navy, Official

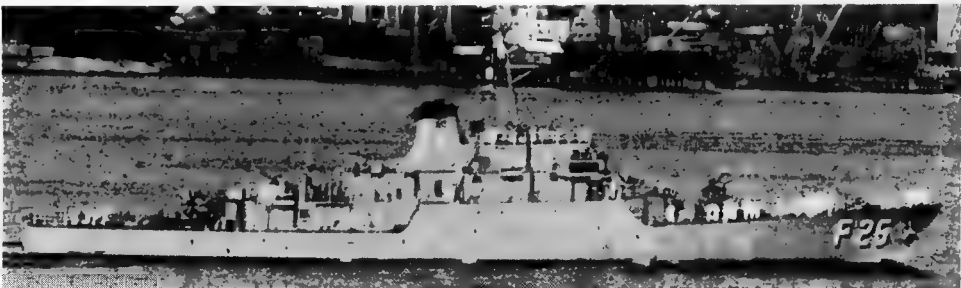
CORVETTES

2 U.S. PF Type

BAYANDOR F 25 (ex-PF 103)
NAGHDI F 26 (ex-PF 104)

Displacement: 900 tons standard (1,135 tons full load)
Dimensions: 275 (o.a.)x33x10 feet
Guns: 2-3 inch, 2-40 mm.
Machinery: F.M. diesels. B.H.P.: 6,000=20 kts.
Complement: 140

General Built by the Livingston Shipbuilding Co., Orange, Texas, for transfer from the U.S. to Iran under MAP. Bayandor was laid down on 20 Aug. 1962 for launch in July 1963, and Naghdi was laid down on 12 Sep. 1962 for launch in Oct. 1963. Bayandor was transferred to the Iranian Navy on 18 May 1964 at Charleston, S.C. and Naghdi on 22 July 1964.



BAYANDOR

1964, James F. Ryan, Jr.

1 Ex-British "Algerine" Type
Escort Minesweeper

PALANG (ex-H.M.S. Fly)

Builders: Lobnitz & Co. Ltd., Renfrew
Laid down: 6 Oct. 1941
Launched: 1 June 1942
Completed: 20 Oct. 1942
Displacement: 1,040 tons standard (1,235 tons full load)
Dimensions: 225 (o.a.)x35 1/2x13 feet
Guns: 2-4 inch, 4-40 mm. AA.
A/S weapons: 2 D.C.T.
Machinery: Triple expansion, 2 shafts, I.H.P.: 2,000=16.5 kts.
Boilers: 2, of 3-drum type
Oil fuel: 270 tons
Radius: 5,000 miles at 10 kts.
Complement: 85

General Former "Algerine" class ocean minesweeper and escort vessel acquired from Great Britain in 1949. "Palang" means "Tiger."



PALANG

1957, Imperial Iranian Navy, Official

COASTAL MINESWEEPERS



SHAHBAZ 1960, A. & J. Pavla
KARKAS (ex-U.S.S. MSC 292)
SHAHBAZ (ex-U.S.S. MSC 275)
SHAHROKH (ex-U.S.S. MSC 276)
SIMORGH (ex-U.S.S. MSC 291)
Displacement: 320 tons light (378 tons full load)
Dimensions: 138 (pp.), 145 1/2 (o.a.)x28x8 1/2 feet
Guns: 1-20 mm.
Machinery: 2 G. M. diesels, 2 shafts, B.H.P.: 890=12.8 kts.
Oil fuel: 27 tons
Radius: 2,400 miles at 11 kts.
Complement: 40 (4 officers, 2 midshipmen, 34 men)

General Built by Bellingham Shipyards Co. (Shahbaz and Shahrokh), Petersen Builders Inc. (Karkas) and Tacoma Boatbuilding Co. (Simorgh). Of wooden construction. Launched in 1959-61 and transferred from U.S. to Iran under MAP in 1959-62. "Shahbaz" means Eagle and "Shahrokh" means Bird of Prey.

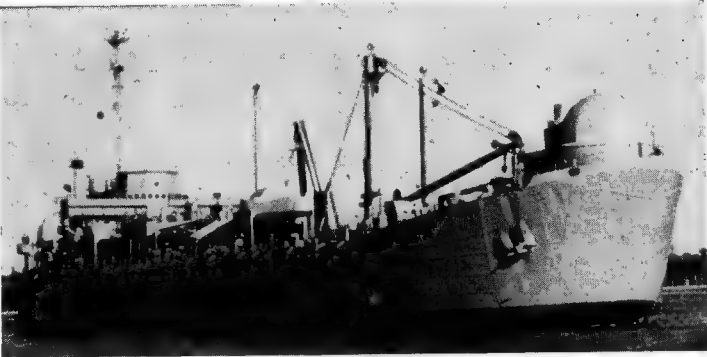
PATROL BOATS



KEYVAN 1957, Official
KEYVAN MAHAN MEHRAN TIRAN
Displacement: 85 tons standard (107 tons full load)
Dimensions: 90 (pp.), 95 (o.a.)x20 1/2x6 1/2 (max.) feet
Guns: 1-40 mm. AA.
A/S weapons: 8-7.2 inch rockets, 8-300 lb. depth charges
Machinery: 4 Cummins diesels, 2 shafts, B.H.P.: 2,200=20 kts.
Radius: 1,500 miles cruising range
Complement: 15

General Keyvan, built in U.S. in 1955, was delivered to Iran on 14 Jan. 1956. For service in the Persian Gulf. Pennant No. MDA 1. Tiran was built by the U.S. Coast Guard at Curtis Bay, Maryland, and transferred to Iran in 1957. Mahan and Mehran were delivered to Iran in 1959 under MAP.

REPAIR SHIP



SOHRAB 1964, Imperial Iranian Navy, Official

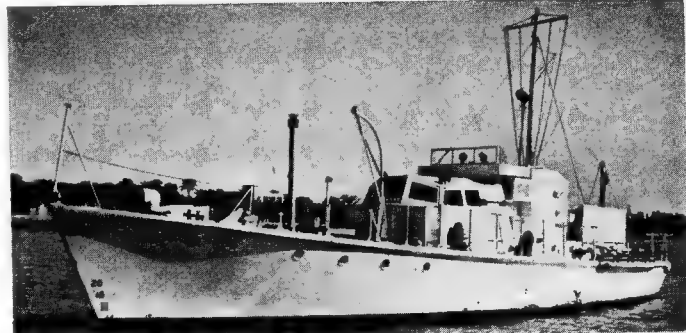
1 Ex-U.S. ARL (Ex-LST) Type

SOHRAB (ex-U.S.S. Gordius, ARL 36, ex-LST 1145)

Displacement: 1,625 tons light (4,100 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.) x 50 x 11½ feet
Guns: 8—40 mm. AA.
Machinery: G.M. diesels, 2 shafts, B.H.P.: 1,800=11.6 kts.

General
Former United States repair ship for landing craft. Built by Chicago Bridge & Iron Co., Seneca, Ill. Laid down on 5 Feb. 1945. Launched on 7 May 1945. Completed on 18 May 1945. Transferred to Iran by the U.S.A. under the Military Aid Programme in Sep. 1961.

SEAWARD DEFENCE CRAFT



ASALON 1957, Official

2 Ex-British HDML Type

ASALON (ex-H.M.S. SML 323, ex-HDML 1081)
TAHMADOU FDB 65 (ex-FDB 58, ex-H.M.S. SDML 1389)

Displacement: 46 tons standard (58 tons full load)
Dimensions: 72 x 16 x 5 feet
Guns: 8 M.G.
Machinery: Diesel, B.H.P.: 320=12 kts.
Complement: 10

General
Former British motor launches of the harbour (seaward) defence type. SML 323 (last employed on survey duties) was transferred from the British Navy to the Iranian Navy at Khorramshahr on 21 June 1956. Employed as despatch boats.

COAST GUARD CUTTERS

9 "Azar" Class

AZAR CHAHAB	DARAKHSH NAVAK	PEYKAN TONDBAD	TONDAR TOUFAN	TOUSAN
Displacement: 65 tons standard (90 tons full load)				
Dimensions: 90 x 16 x 9 feet				
Guns: M.G.				
Machinery: 2 diesels. Speed=22 kts.				

General
Built by Cant. Nav. I.N.M.A., La Spezia. Transferred to the Coast Guard in 1958. A photograph of Azar appears in the 1955-56 to 1963-64 editions.

MOTOR LAUNCHES

3 "Babolsar" Class

BABOLSAR	GORGAN	SEFIDROUDE
Displacement: 28 to 32 tons		
Dimensions: 68½ x 12½ x 5½ feet		
Guns: 1—47 mm. (Skoda), 1 M.G.		
Machinery: 2 Krupp diesels, 2 shafts, B.H.P.: 300=14 kts.		

General
Built in 1935 by Cant. Nav. Riuniti, Palermo, Italy. Employed in the Caspian Sea.

6 "Mah" Class

MAHNAVI-HAMRAZ MAHNAVI-TAHERI	MAHNAVI-VAHEDI MARDJAN	MORVARID SADAF
Displacement: 10 tons		
Dimensions: 40 x 11 x 3½ feet		
Guns: M.G.		
Machinery: 2 General Motors diesels.		

General
The two ex-air/sea rescue craft (ex-motor torpedo boats) were handed over to the Coast Guard in 1953.

LANDING CRAFT



LARAK 1963, Imperial Iranian Navy, Official

3 Ex-U.S. LSIL Type

GHASM (ex-U.S.S. LSIL)
HENGAM (ex-French LSIL 9037, ex-U.S.S. LSIL 768) LARAK (ex-U.S.S. LSIL 710)

Displacement: 210 tons light (393 tons full load)
Dimensions: 153 (w.l.), 159 (o.a.) x 23½ x 5½ (max.) feet
Guns: 4—20 mm. AA.
Machinery: G.M. diesels, 2 shafts, B.H.P.: 1,800=14.4 kts.
Oil fuel: 80 tons
Radius: 5,000 miles at 12 kts.
Complement: 40

General
Former United States Landing Ships, Infantry, Large, built in 1944. LSIL 768 was ceded to France in 1953 by the United States for service in Indo-China, given back to the U.S.A. in 1957 and then transferred to Iran under the Mutual Defense Assistance Program. LSIL 710 was loaned to Iran by the United States in 1959. Pennant Nos. 41 and 42, respectively. Ghasm was added to the fleet in 1964.
Utility Type
U.S.S. LCU 1431 was transferred to Iran by U.S. in 1964.

INSHORE MINESWEEPERS

2 U.S. MSI Type

KAHNAMUIE 301 (ex-MSI 14) RIAZI 302 (ex-MSI 13)

Displacement: 180 tons standard (235 tons full load)
Dimensions: 111 x 23 x 6 feet
Machinery: Diesels, B.H.P.: 650=13 kts.
Complement: 23 (5 officers, 18 men)

General
Built in the U.S. by Tacoma Boat Building Co. for delivery to Iran under MAP. Laid down on 22 June 1962 and 1 Feb. 1963, and transferred at Seattle, Washington, on 3 Sep. 1964 and 15 Oct. 1964, respectively.

IMPERIAL YACHT



CHASAVAR 1958, Imperial Iranian Navy, Official

Displacement: 530 tons
Dimensions: 176 x 25½ x 10½ feet
Machinery: 2 sets diesels, B.H.P.: 1,300=15 kts.

General
Built by N.V. Boele's Scheepswerven, Bolnes, Netherlands. Engined by Gebr. Stork of Hengelo. Launched in 1936. In the Caspian Sea.

OILER

HENGHEH	HORMUZ YO 247
Displacement: 1,250 tons standard (1,700 tons full load)	
Dimensions: 171½ (w.l.), 178½ (o.a.) x 32½ x 14 feet	
Machinery: 1 Ansaldo Q 370, 4-cycle diesel	

General
Hormuz was built by Cantiere Castellamare di Stabia. Own oil fuel: 25 tons. Cargo oil capacity 5,000 to 6,000 barrels. Hengheh was added to the Fleet in 1964. A photograph of Hormuz appears in the 1957-58 to 1959-60 editions.

Water Tanker
U.S.S. YW 88 was transferred to Iran by U.S. in 1964.

TENDER

SIRRY (ex-M.V.F. 1513)
Length: 90 feet
General
Purchased from Great Britain in 1949. Rated as a "Fire Extinguishing Boat".

TUG

YADAK BAR (ex-Neyrou)
Displacement: 226 tons
Dimensions: 81 (pp.), 88½ (o.a.) x 22 x 10 feet
Machinery: Triple expansion, I.H.P.: 600=11 kts.
General
Built by Cant. Nav. Riuniti, Ancona. Launched on 9 Dec. 1944. In Persian Gulf.

ISRAEL

Administration

Commander-in-Chief of the Israeli Navy:
Commodore Yohai Ben Nun.

Naval, Military and Air Attaché in London:
Brigadier-General Moshe Goren.
Naval, Military and Air Attaché in Washington:
Colonel Ram Ron.

Mercantile Marine

Lloyd's Register of Shipping:
98 vessels of 543,092 tons gross

DESTROYERS

2 Ex-British "Z" Class

ELATH (ex-H.M.S. Zealous) YAFFO (ex-H.M.S. Zodiac)

Name:	Elath	Yaffo
Pen. No.	40	42
Builders:	Cammell Laird & Co. Ltd., Birkenhead	John I. Thornycroft & Co. Ltd., Southampton
Laid down:	5 May 1942	7 Nov. 1942
Launched:	28 Feb. 1944	11 Mar. 1944
Completed:	9 Oct. 1944	25 Oct. 1944

Displacement:	1,710 tons standard (2,555 tons full load)
Dimensions:	362½ (o.a.)×35½×17 feet
Guns:	4—4.5 inch d.p., 6—40 mm. AA.
Tubes:	8—21 inch
A/S weapons:	4 D.C.T.
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 40,000=31 kts.
Boilers:	2 Admiralty 3-drum type
Oil fuel:	580 tons
Radius:	2,800 miles at 20 kts.
Complement:	250 officers and ratings



YAFFO

1964, Israeli Navy, Official

General

Purchased from Great Britain. Transferred to Israel on 15 July in Cardiff Docks. Refitted before going to Israel in 1956. Elath by Harland & Wolff in Langton Dock, Liverpool. Yaffo by Crichtons in Trafalgar Dock, Liverpool. A photograph of Elath appears in the 1958-59 to 1964-65 editions.

FRIGATES

1 Ex-Egyptian "Hunt" Class

HAIFA (ex-Ibrahim el Awal, ex-Mohamed Ali el Kebir, ex-Mendip, ex-Lin Fu, ex-Mendip)

Pennant No.:	38
Builders:	Swan, Hunter & Wigham Richardson, Ltd., Wallsend-on-Tyne
Engineers:	The Wallsend Slipway & Engineering Co. Ltd., Wallsend
Laid down:	10 Aug. 1939
Launched:	9 Apr. 1940
Completed:	12 Oct. 1940

Displacement:	1,000 tons standard (1,490 tons full load)
Dimensions:	273½ (pp.), 280 (o.a.)×29×7½ (mean), 14 (max.) feet
Guns:	4—4 inch, 2—40 mm. AA., 3—20 mm. AA.
A/S weapons:	2 D.C.T.
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 19,000=25 kts.
Boilers:	2; of 3-drum type
Oil fuel:	280 tons
Radius:	3,000 miles at 14 kts.
Complement:	190 officers and ratings

General

Former escort destroyer, later reclassified as anti-aircraft frigate, of the British "Hunt" class, Type 1.



HAIFA

1964, Israeli Navy, Official

History

This ship, first named Mendip, served with the British Navy from Oct. 1940 until May 1948 when she was transferred to the Chinese Navy and renamed Lin Fu. She was returned to the British Navy at Hong Kong a year later and reverted to the name Mendip, but was

transferred to the Egyptian Navy in Nov. 1949 and was first renamed Mohamed Ali el Kebir but was again renamed Ibrahim el Awal in 1951. She was captured from Egypt off Haifa by Israeli forces on 31 Oct. 1956 and renamed Haifa. She was commissioned for service in the Israeli Navy in Jan. 1957.

SUBMARINES

2 Ex-British "T" Class

LEVIATHAN (ex-H.M.S. Turpin) DAKAR (ex-H.M.S. Totem)

Name:	Leviathan	Dakar
Builders:	H.M. DY. Chatham	H.M. DY. Devonport
Laid down:	24 May 1943	22 Oct. 1942
Launched:	5 Aug. 1944	28 Sep. 1943
Completed:	18 Dec. 1944	9 Jan. 1945

Displacement:	1,280 tons standard, 1,505 tons surface (1,700 tons submerged)
Dimensions:	285½ (o.a.)×26½×14½ feet
Tubes:	6—21 inch (4 bow, 2 stern)
Machinery:	Diesels. B.H.P.: 2,500=15.25 kts. surface Electric motors. H.P.: 2,900=15 kts. submerged



LEVIATHAN

1965, A. & J. Pavla

General

Acquired from Great Britain (announced in Nov.

1964). To be handed over to Israel after refit in H.M. Dockyard, Portsmouth. Dakar means Shark.

2 Ex-British "S" Class

RAHAV (ex-H.M.S. Sanguine) TANIN (ex-H.M.S. Springer)

Name:	Rahav	Tanin
Pen. No.:	73	71
Builders:	Cammell Laird & Co. Ltd., Birkenhead	Cammell Laird & Co. Ltd., Birkenhead
Laid down:	10 Jan. 1944	8 May 1944
Launched:	15 Feb. 1945	14 May 1945
Completed:	13 May 1945	2 Aug. 1945

Displacement:	715 tons standard, 814 tons surface, 1,000 tons submerged
Dimensions:	202½ (pp.), 217 (o.a.)×23½×10½ (mean) feet
Guns:	1—4 inch
Tubes:	6—21 inch
Machinery:	Diesels. B.H.P.: 1,900=14.7 kts. surface Electric motors. H.P.: 1,300=9 kts. submerged
Oil fuel:	70 tons
Complement:	57 officers and ratings



TANIN

1961, Skyfotos

General

Former British submarines of the "S" class purchased by Israel in Oct. 1958. Springer was handed over to the Israeli Navy at Portsmouth on 9 Oct. 1958 and renamed Tanin (Crocodile). Both boats were refitted in Great Britain before delivery to Israel in May 1960 (Rahav

and Dec. 1959 (Tanin). They are reported to be very handy craft, capable of making a "crash dive" in 30 seconds, and both are fitted with "Snort" mast and sonar domes. A photograph of Rahav appears in the 1959-60 to 1961-62 editions.

PATROL VESSEL



NOGAH

1962, Israeli Navy, Official

NOGAH (ex-PC 16)

Displacement: 295 tons standard (450 tons full load)
 Dimensions: 170 (pp.), 173½ (o.a.) × 23 × 10 (max.) feet.
 Guns: 1—4 inch, 1—40 mm. AA., 3—20 mm. AA.
 A/S weapons: 4 D.C.T.
 Oil fuel: 60 tons
 Radius: 5,000 miles at 9 kts.
 Machinery: 2 diesels, 2 shafts. B.H.P.: 1,764=18 kts.
 Complement: 70

General

Former United States patrol vessel (submarine chaser) of the steel hulled PC type.

COAST GUARD CUTTERS



YARDEN

1961, Israeli Navy, Official

YARDEN

Displacement: 96 tons standard (109 tons full load)
 Dimensions: 100 × 20 × 6 feet
 Guns: 2—20 mm. AA.
 Machinery: Diesels, 2 shafts. Speed 22 kts.
 Complement: 16

YARKON

General

Coastguard cutters. Both built by Yacht & Bootswerft, Burmester Burg, Germany. Yarkon was launched on 25 July 1956 and Yarden (Pennant No. 42) in 1957.

MOTOR TORPEDO BOATS



SHVA

1964, Israeli Navy, Official

OPHIR

SHVA

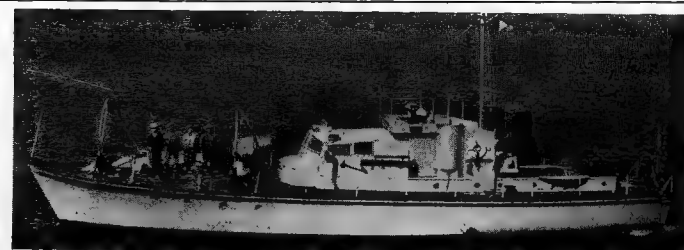
TARSHISH

Displacement: 40 tons
 Dimensions: 70 × 17 × 5 feet
 Guns: 1—40 mm. AA., 2—20 mm. AA.
 Torpedoes: 2—17.7 inch
 Machinery: High octane petrol engines, B.H.P.: 4,000=40 kts.

General

Motor Torpedo Boats/Gunboats built for the Israeli Navy by Cantieri Baglietto, Varrazze, Italy, in 1956-57. Pennant Nos. T 150, 151 and 152, respectively.

SEAWARD PATROL CRAFT



TIRTSA

1955, Israeli Navy, Official

DROR (ex-M 21)

Displacement: 46 tons standard (54 tons full load)
 Dimensions: 72 (o.a.) × 16 × 5½ feet
 Guns: 2—20 mm. AA.
 A/S weapons: 8 D.C.
 Machinery: 2 diesels, 2 shafts. B.H.P.: 320=12 kts.
 Complement: 12

SAAR (ex-M 35)

TIRTSA

General

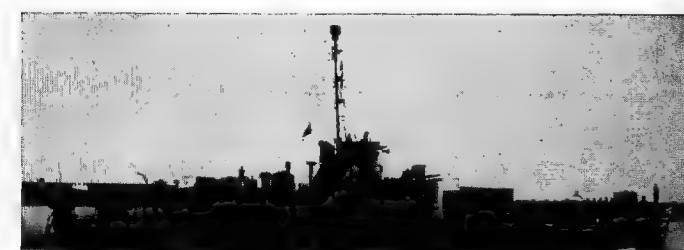
Former British harbour defence motor launches. Built in Great Britain in 1943.

Disposals

The former British Fairmile "B" type motor launch *Haportzim* was officially deleted from the Navy list in 1961.

The former United States coast guard cutter *Matzpen* of the sloop type, formerly employed as a training ship and later as a depot ship, was sold for scrap in 1962.

LANDING CRAFT



LCI type

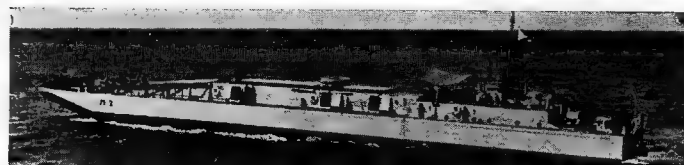
1954, Israeli Navy, Official

LCI

Displacement: 230 tons standard (387 tons full load)
 Dimensions: 159 × 23 × 5½ feet
 Machinery: 2 diesels. B.H.P.: 1,320=14.4 kts.

General

Former United States vessels of the LCI (Landing Craft Infantry) type



LCM type

1956, Israeli Navy, Official

LCM

Displacement: 143 tons standard (309 tons full load)
 Dimensions: 120 × 33 × 4 feet
 Machinery: 3 diesels. B.H.P.: 675=10 kts.

General

Reported to be a mixed flotilla of ex-U.S. landing craft, including ex-U.S.S. 640 and ex-U.S.S. 673, Siebel Ferries, and ex-British vessels of the LCT (6) type.

LCM

Displacement: 22 tons standard (60 tons full load)
 Dimensions: 50 × 14 × 3½ feet
 Machinery: 2 diesels. B.H.P.: 450=11 kts.

General

Former United States vessels of the LCM (Landing Craft Mechanised) type.



TAHMASS

1965, Israeli Navy, Official

AYAH

BAZ

DAYA

PERESS

TAHMASS

YASOOR

Displacement: 62 tons standard
 Dimensions: 85½ (o.a.) × 20½ × 5 feet
 Guns: 1—40 mm., 4—20 mm. AA.
 Torpedoes: 2—17.7 inch
 Machinery: 2 Napier Deltic diesels, 2 shafts. B.H.P.: 4,600=42 kts.
 Radius: 600 miles at 29 kts.
 Complement: 15 (1 officer, 13 men)

General

Built by Chantiers de Meulan, France. Launched in 1950-56. Pennant Nos.: T 200, 201, 202, 203, 204, 205. Photographs appear of T 208 in the 1953-54 to 1957-58 editions, of T 207 in the 1953-54 to 1960-61 editions, and of *Peress* in the 1961-62 to 1964-65 editions.

LILITT

SHALDAGG

TINSHEMETT

Displacement: 43 tons standard
 Dimensions: 70 × 19 × 5 feet
 Guns: 1—40 mm., 2—20 mm. AA.
 Tubes: 2—18 inch
 Machinery: 3 Packard engines. B.H.P.: 4,050=40 kts.
 Radius: 600 miles at 15 kts.
 Complement: 16

General

Motor torpedo boats purchased in Great Britain. Built by Vosper, Ltd., Portsmouth, England, in 1942: Pennant Nos.: T 209, T 210, and T 212.

ITALY

Administration

Chief of Naval Staff:
Ammiraglio di Squadra Ernesto Giuriati

Deputy Chief of Naval Staff:
Ammiraglio di Squadra Luciano Sotgiu

Commander-in-Chief Naval Forces:
Ammiraglio di Squadra Alessandro Michelagnoli

Naval Attaché in Washington:
Captain Ugo Masetti, It.N.

Naval Attaché in London:
Captain Vittorio Patrelli Campagnano, It.N.

New Construction Programme

- 2 Guided Missile Cruisers, "Vittorio Veneto" Class
- 2 Frigates, "Alpino" Class
- 4 Corvettes, "Pietro de Cristofaro" Class
- 4 Hunter Killer Submarines "Enrico Toto" Class
- 1 Nuclear Powered Submarine (Design Study)
- 1 Fast Fleet Replenishment Ship of new design

Personnel

1963: 40,000 officers and ratings
1964: 38,000 officers and ratings
1965: 39,000 officers and ratings

Navy Estimates

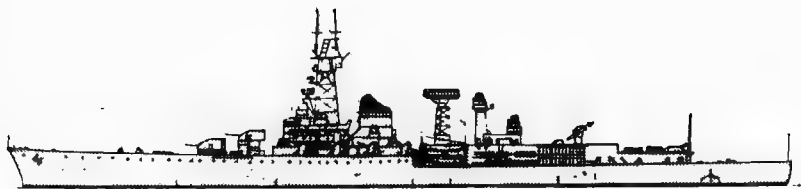
1963: 138,000,000,000 Lire
1964: 154,000,000,000 Lire
1965: 178,000,000,000 Lire

Mercantile Marine

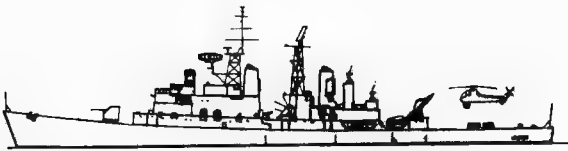
Lloyd's Register of Shipping:
1,421 vessels of 5,707,817 tons gross

Silhouettes

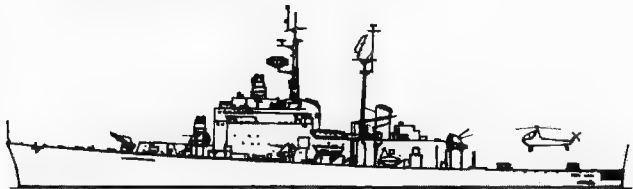
Scale: 150 ft.=1 inch



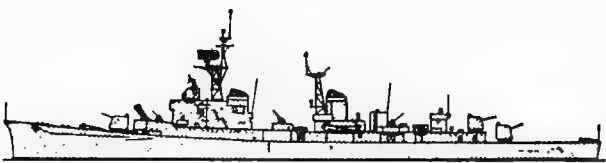
GIUSEPPE GARIBALDI



IMPAVIDO, INTREPIDO



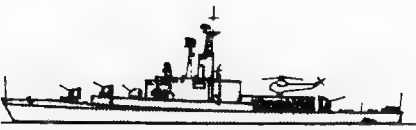
ANDREA DORIA, CAIO DULIO



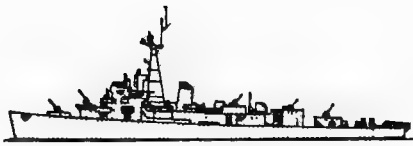
SAN MARCO



IMPETUOSO, INDOMITO



BERGAMINI Class



ALTAIR Class



ARTIGLIERE



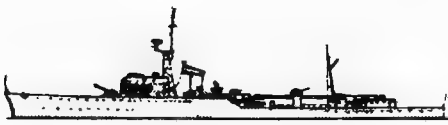
CENTAURO Class



ALBATROS Class



AVIERE



CARABINIERE



APE Class

GUIDED MISSILE CRUISERS (CG)



VITTORIO VENETO (artist's impression)

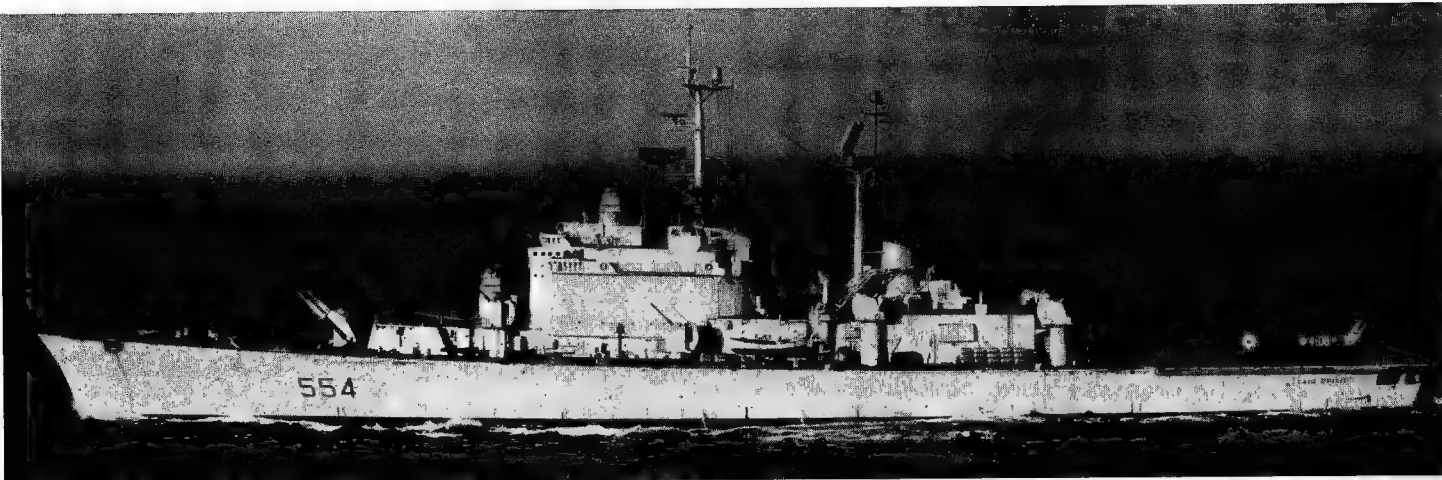
1963, Italian Navy, Official

2 New Construction "Vittorio Veneto" Class	
ITALIA	VITTORIO VENETO
Displacement:	8,000 tons standard (8,850 tons full load) see General
Dimensions:	Length: 511 (pp), 548 (o.a.), Beam: 62½ Draught: 16½ feet
Aircraft:	Nine A/B 240B ASW helicopters

Guns:	8—3 inch, 62 cal. AA., 2—4.1 inch (105 mm) triple star rocket launchers
Guided weapons:	1 twin launcher forward for "Terrier" surface-to-air missiles 2 triple for A/S torpedoes
Tubes:	Geared steam turbines, 2 shafts, S.H.P.: 73,000=32 kts. (designed speed)
Machinery:	4 Foster-Wheeler
Boilers:	550
Complement:	

General
Multi-purpose guided missile armed cruiser and helicopter carrier. Developed from the "Doria" class, but with considerable strengthening of the helicopter squadron and improved facilities for anti-submarine operations. Vittorio Veneto was to have been laid down in 1964-65 by Navalmeccanica Castellammare di Stabia, but her design is being recast and she may turn out at 9,000 to 9,500 standard displacement. The construction of a second ship of the class is projected. The name Italia is under review. Other names being considered are Roma, Trento, and Trieste.

GUIDED MISSILE ESCORT CRUISERS (CG)

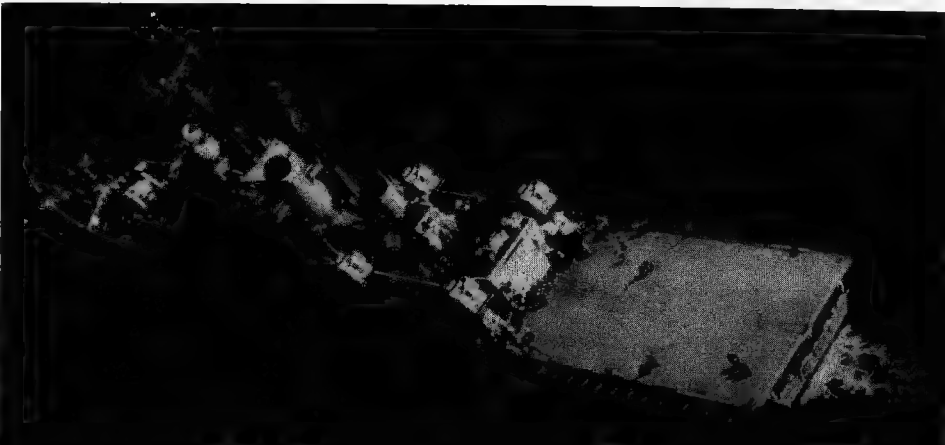


CAIO DUILIO

1965, Italian Navy, Official

2 "Andrea Doria" Class
(officially rated as Incrociatori di Scorta)

Name:	ANDREA DORIA	CAIO DUILIO
Pennant No.:	553	554
Builders:	Cantieri del Tirreno, Riva Trigoso	Navalmeccanica Castellammare di Stabia
Laid down:	11 May 1958	16 May 1958
Launched:	27 Feb. 1963	22 Dec. 1962
Completed:	23 Feb. 1964	30 Nov. 1964
Displacement:	6,000 tons standard (6,500 tons full load)	
Dimensions:	Length: 472½ (pp.), 483½ (o.a.) feet. Beam: 56½ feet. Draught: 16 feet	
Guns:	8—3 inch, 62 cal. AA. (see Gunnery), 2—4.1 (105 mm.) triple star rocket launchers	
Guided weapons:	1 twin launcher forward for "Terrier" surface-to-air missiles 2 triple for 12-inch A/S torpedoes	
Tubes:	Four A/B 204B ASW helicopters	
Aircraft:	Geared steam turbines, 2 shafts, S.H.P.: 70,000=31 kts. (designed speed)	
Machinery:	4 Foster-Wheeler	
Boilers:	500	
Complement:		



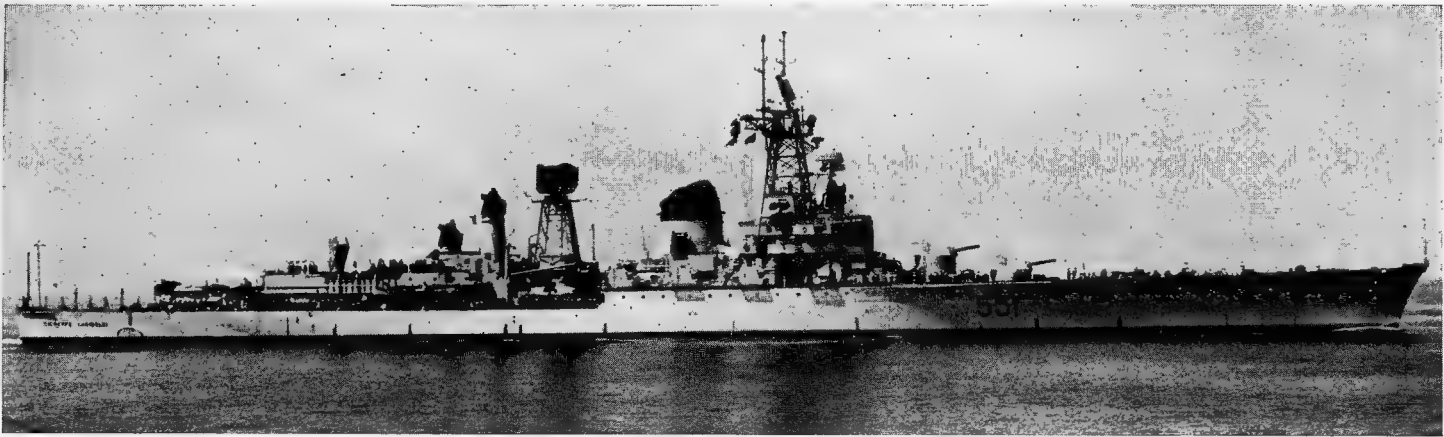
ANDREA DORIA

1965, Yasuo Abe

General
Escort cruisers of an entirely new design, extraordinarily beamy in relation to their length. Enrico Dandolo was the name originally allocated to Andrea Doria.
Roll Damping
Both ships have Gyrofin-Salmopiraghi stabilisers.
Photographs
A large starboard broadside view and a port bow view of Andrea Doria appear in the 1964-65 edition.

Gunnery
The anti-aircraft battery includes eight 3-inch fully automatic weapons of a new pattern, disposed in single turrets, four on each side amidships abreast the funnels and the bridge. They have a rate of fire 65 to 70 rounds per minute.
Helicopter Platform
Helicopters operate from a large platform aft measuring 98½ feet by 52½ feet (30 by 16 metres).

GUIDED MISSILE LIGHT CRUISER (CG)

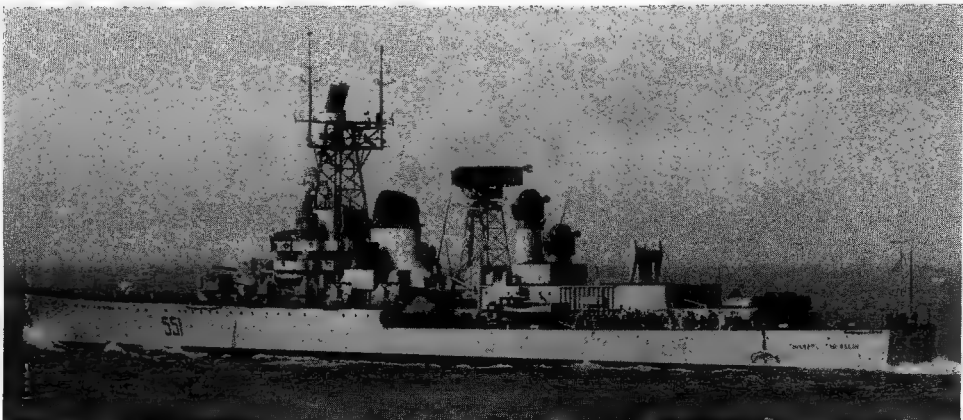


GIUSEPPE GARIBALDI

1964, Captain Aldo Fraccaroli

I Converted "Garibaldi" Class

GIUSEPPE GARIBALDI	
Pennant No.:	C 551
Builders:	C. R. dell'Adriatico, Trieste
Laid down:	Dec. 1933
Launched:	21. Apr. 1936
Completed:	Dec. 1937
Converted:	Dec. 1957-1962
Displacements:	9,800 tons standard (11,050 tons full load)
Dimensions:	Length: 593 (w.l.), 613½ (o.a.) Beam: 61½ (o.a.) Draught: 17 (mean), 20 (max.) feet
Guns:	4—5-3 inch 45 cal. d.p., 8—3 inch, 62 cal AA. (see Gunnery)
Guided weapons:	Four tubes for ballistic missiles; 1 twin launcher for "Terrier" surface-to-air missiles (72 missiles carried) See Guided Weapons notes below
Armour:	4½" belt, 2½" deck, 4" turrets, 5" conning tower
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 85,000=31 kts.
Bollers:	6, of 3-drum type
Oil fuel:	1,700 tons
Radius:	4,500 miles at 20 kts.
Complement:	650



GIUSEPPE GARIBALDI

1965, Captain Aldo Fraccaroli

General
Originally a sister ship of the light cruiser *Luigi di Savoia Duca degli Abruzzi* (removed from the effective list in Apr. 1961), she was converted into a guided missile cruiser. The appearance of the ship was completely altered with a single large trunked funnel and lattice masts. She was commissioned for operational service in Nov. 1962, and became Flagship of the Commander-in-Chief.

Guided Weapons
The ballistic missile tubes are installed aft in "Y" position, the "Terrier" system being superimposed in "X" position, a deck higher.

Giuseppe Garibaldi launched mock "Terriers" and ballistic missiles off La Spezia in late 1961 and 1962. Her first launches were made in the Caribbean Sea on 8 Nov. 1962 with "Terriers" and then with ballistic missiles.

Gunnery
The new armament includes four 5-3 inch dual purpose guns of a new automatic model disposed in two twin turrets forward, and an anti-aircraft battery of eight 3-inch automatic weapons, also of a new pattern, built by O.T.O. La Spezia, disposed in single turrets, four on each side amidships abreast the funnel and the bridge, with a rate of fire of 65 to 70 rounds per minutes.

Engineering
On her original trials this ship developed 104,030 S.H.P. and attained a speed of 33.6 kts. During her reconstruction her machinery was completely refitted.

Funnel
Early in 1963 the top of the funnel cowl was modified, increasing the height.

Operational
Giuseppe Garibaldi, with the guided missile armed destroyers *Impavido* and *Intrepido* form the 4th Naval Division.

Photographs
A starboard broadside view and a port quarter oblique view, both before the funnel was heightened, appear in the 1962-63 edition; and a port quarter view of the ship, firing a Polaris-type fleet ballistic missile from a vertical tube aft, appears in the Addenda (page 450) of the 1963-64 edition (official Italian Navy photograph).

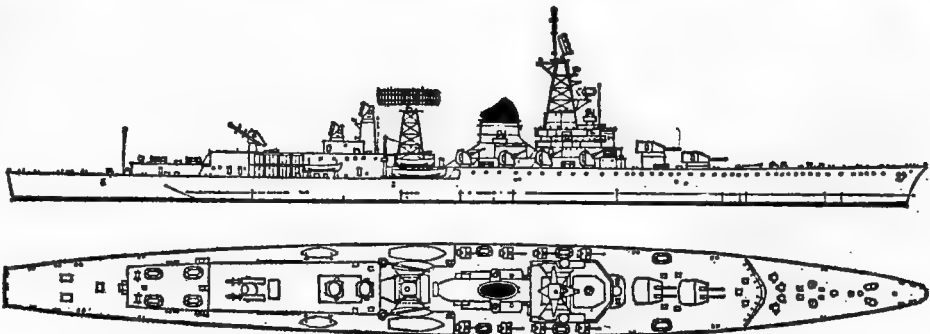
Drawing
Starboard elevation and plan. Drawn in 1963. Scale. 128 feet=1 inch.

Disposal
Her original sister ship, the light cruiser *Luigi di Savoia Duca degli Abruzzi*, was removed from the effective list in Apr. 1961.



GIUSEPPE GARIBALDI (showing stern tubes for 4 ballistic missiles)

1963, Captain Aldo Fraccaroli

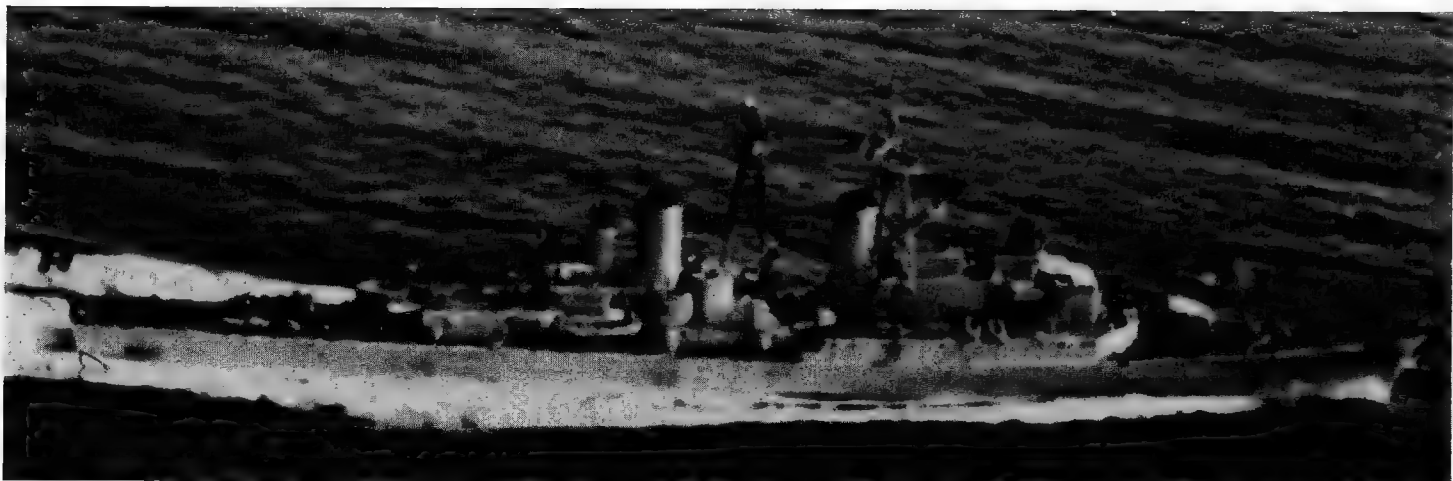


GUIDED MISSILE ARMED DESTROYERS (DDG)



INTREPIDO

1965, Italian Navy, Official



IMPAVIDO (full power trials)

1964, Italian Navy, Official

2 "Impavido" Class

IMPAVIDO	INTREPIDO	
Name:	Impavido	Intrepido
Pennant No.:	D 570	D 571
Builders:	Cantieri del Tirreno Riva, Trigo	Ansaldo, Leghorn
Ordered:	Jan. 1957	1959
Laid down:	10 June 1957	16 May 1959
Launched:	25 May 1962	21 Oct. 1962
Completed:	16 Nov. 1963	30 Oct. 1964
Displacement:	3,201 tons standard (3,941 tons full load)	
Dimensions:	429½×44½×14½ feet	
Guns:	2—5 inch, 38 cal. AA. (forward); 4—3 inch, 62 cal. AA., 1 single launcher aft for "Tartar" surface-to-air missiles (48 "Tartar" missiles carried)	
Aircraft:	1 A/S light helicopter	
Tubes:	2 triple, for A/S torpedoes	
Machinery:	Geared turbines, 2 shafts, S.H.P.: 70,000=34 kts. (see Engineering notes)	
Boilers:	4	
Complement:	340 to 344 (25 officers and 315 to 319 men)	

General
Rated as *Caccia Lanciamissili* under the generic category of *Navi Scorta della Classe (D)*. Built under the 1956-57 and 1958-59 new construction programmes, respectively. Both ships are operational.

Anti-Submarine Warfare
The helicopters are of the weapons carrier type (Italian).

Photographs
A large port quarter view of *Impavido* appears in the 1963-64 edition, and a large starboard bow view of *Intrepido* in the 1964-65 edition.



IMPAVIDO

1964, Italian Navy, Official

Engineering
On her preliminary full power trials *Impavido*, with light displacement, reached a speed of 34.5 kts. (33 kts. at normal load).
Roll Damping
Both ships have stabilisers.

Disposal of light Cruiser
The light cruiser *Raimondo Montecuccoli*, sole survivor of the "Condottieri" class, used as a training ship for midshipmen since 1949, was removed from the effective list in 1964. The official date for scrapping was 1 June 1964.

DESTROYER LEADERS (ex-Light Cruisers) DL



SAN GIORGIO (as converted)

1965, Captain Aldo Fraccaroli

SAN GIORGIO (ex-Pompeo Magno)
SAN MARCO (ex-Giulio Germanico)

Name:	San Giorgio	San Marco
Pennant No.:	D 562	D 563
Builders:	Cantieri N. Riuniti, Ancona	Navalmeccanica Castellammare di Stabia
Laid down:	23 Sep. 1939	11 May 1940
Launched:	28 Aug. 1941	20 July 1941
Completed:	24 June 1943	19 Jan. 1956
Displacement:	San Marco: 3,950 tons standard (5,600 tons full load; San Giorgio: 4,450 tons full load, see Conversion	
Dimensions:	455½ (w.l.), 466½ (o.a.)×47½×21 feet	
Guns:	San Marco: 6—5 inch, 38 cal.; 20—40 mm., 56 cal. AA.; San Giorgio: 4—5 inch, 38 cal., 3—3 inch, 62 cal.	
A/S weapons:	San Marco: 1 three-barrelled depth charge mortar, 4 D.C.T., 1 D.C. rack San Giorgio: 1 three-barrelled mortar; 2 triple A/S torpedo tubes	
Machinery:	San Marco: Geared steam turbines, 2 shafts, S.H.P.: 110,000 =38 kts. San Giorgio: 2 Tosi gas turbines, 4 Fiat diesels, Total H.P.: 31,200 =29 kts.	
Boilers:	4, of 3-drum type (San Marco)	
Oil fuel:	1,400 tons (San Marco)	
Radius:	3,000 miles at 25 kts.	
Complement:	430	



SAN MARCO

1964, A. & J. Pavia

General

Originally built as *Esploratori Oceanici* (Ocean Scouts), but re-rated as light cruisers of the Roman Captains (*Capatani Romani*) class. *Giulio Germanico* was sunk by the Germans in Sep. 1943 before completion, but was re-floated in 1947. Both ships were converted into fleet destroyers in 1951-56 by Cantieri del Tirreno, Genova and Navalmeccanica Castellammare di Stabia, *San Giorgio* being re-commissioned on 1 July 1955 and *San Marco* on 20 Feb. 1956. Re-rated *Esploratori* (scouts) in 1957, and *Cacciatorpediniere Conduttori* (destroyer leaders) in 1958.

Conversion

San Giorgio underwent complete reconstruction at the Naval Dockyard, La Spezia, in 1963-65. The modernisation included her adaptation as a Training Ship for 130 cadets of the *Accademia Navale*. Changes were made in the armament (she was formerly armed like *San Marco*) and new machinery fitted, gas turbines and diesels replacing steam turbines and boilers.

Radar

The "quotameter" was removed from the main-top.

Engineering

On trials in 1955 these ships made 40 and 41 knots.

DESTROYERS (DD)

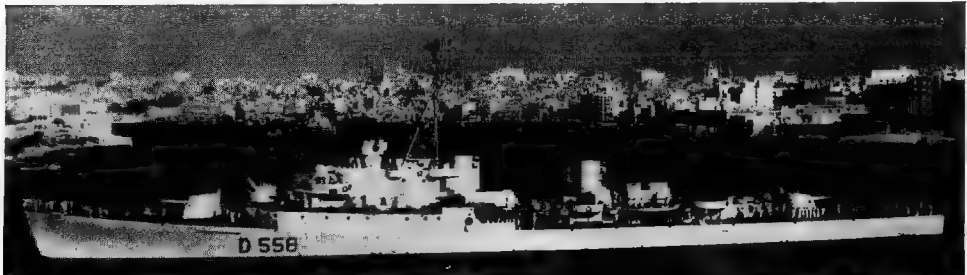


INDOMITO

1963, Captain Aldo Fraccaroli

2 "Impetuoso" Class

Name:	IMPETUOSO	INDOMITO
Pennant No.:	D 558	D 559
Builders:	Cantieri del Tirreno, Riva Trigoso	Ansaldo, Leghorn (formerly O.T.O.)
Ordered:	Nov. 1950	Nov. 1950
Laid down:	7 May 1952	24 Apr. 1952
Launched:	16 Sep. 1956	7 Aug. 1955
Completed:	25 Jan. 1958	23 Feb. 1958
Displacement:	2,755 tons standard (3,800 tons full load)	
Dimensions:	405 (pp.), 418½ (o.a.)×43½×17½ feet	
Guns:	4—5 nch, 38 cal. AA., 16—40 mm., 56 cal. AA., 2—105 mm. triple star rocket launchers	
Tubes:	2 triple for A/S torpedoes	
A/S weapons:	1 three-barrelled depth charge mortar, 4 D.C.T., 1 D.C. rack	
Machinery:	Geared turbines, 2 shafts, S.H.P.: 60,000=34 kts. (see Engineering)	
Boilers:	4 Foster-Wheeler	
Complement:	350	



IMPETUOSO

1964, A. & J. Pavia

General

Italy's first destroyers to be constructed since the Second World War. Officially rated as *Cacciatorpediniere* or torpedo boat destroyers.

Engineering

On their sea trials these ships attained a speed of 35 kts. at full load.

Conversion

Conversion and modernisation of these ships is under consideration. The 5-inch turret aft may be replaced by a "Tartar" launcher.

Photographs

Other photographs of *Impetuoso* appear in the 1958-59 to 1962-63 editions.

Destroyers—continued

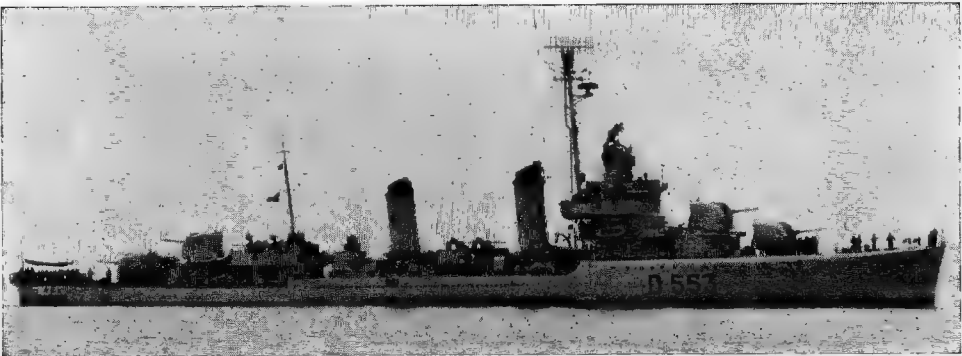
2 Ex-U.S. DD Type
(officially rated as *Cacciatorpediniere*)

ARTIGLIERE (ex-U.S.S. *Woodworth*, DD 460)

Pennant No.: D 553
Builders: Bethlehem, San Francisco
Laid down: 13 Jan. 1941
Launched: 29 Nov. 1941
Completed: 30 Apr. 1942

Displacement: 1,620 tons standard (2,575 tons full load)
Dimensions: 348½" (o.a.)×35½×18 (max.) feet
Guns: 4—5 inch, 38 cal., 12—40 mm. 56 cal., 6—20 mm., 70 cal.
A/S weapons: 4 D.C. throwers, 2 D.C. racks
Machinery: Geared turbines. 2 shafts. S.H.P.: 50,000=31 kts.
Boilers: 4 high-pressure
Oil fuel: 600 tons
Radius: 6,000 miles at 12 kts.
Complement: 200 (peace), 250 (war)

General
Formerly of the United States "Mayo" class destroyers (DD). She is used as motor torpedo boat tender and command ship of motor torpedo boat flotillas.



ARTIGLIERE

1963, Giorgio Arra

Transfer
Both transferred from the U.S.A. under the Mutual Defense Assistance Program and commissioned on 25 May 1951. Officially turned over to Italy on 11 June 1951. The 5—21 inch torpedo tubes were removed.

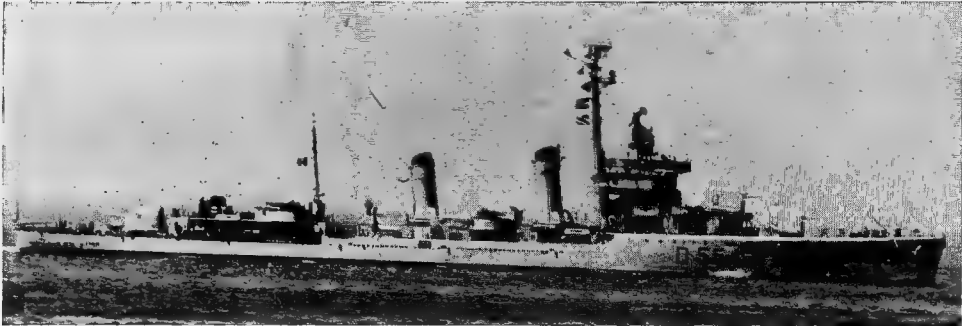
Appearance
Artigliere has flat funnels and shielded "X" 5 inch mounting but *Aviere* has round funnels and no shield to "X" 5 inch gun mounting, and has extra tier on bridge, see photographs above and below.

AVIERE (ex-U.S.S. *Nicholson*, DD 442)

Pennant No.: D 554
Builders: Boston Navy Yard
Laid down: 1 Nov. 1939
Launched: 31 May 1940
Completed: 3 June 1941

Displacement: 1,700 tons standard (2,580 tons full load)
Dimensions: 341 (w.l.), 348½ (o.a.)×36×18 (max.) feet
Guns: 4—5 inch, 38 cal., 12—40 mm. Bofors, 6—20 mm. Oerlikon
A/S weapons: 4 D.C. throwers, 2 D.C. racks
Machinery: General Electric geared turbines. 2 shafts. S.H.P.: 50,000=31 kts.
Boilers: 4 Babcock & Wilcox
Oil fuel: 600 tons
Radius: 6,000 miles at 12 kts.
Complement: 200 (peace), 250 (war)

General
Former United States "Gleaves" class destroyer (DD). See **Transfer** and **Appearance** above.



AVIERE

1963, Captain Aldo Fraccaroli

Disposals
Of the older Italian destroyers *Granatiere* was converted into a command ship on 1 June 1964, and *Carabiniere* (latterly rated as Auxiliary Experimental Ship) on 13 Jan. 1965. *Grecale* (latterly removed from the effective list in 1958.

FRIGATES (*Fregate*)

2 "Alpino" Class (New Construction)

ALPINO (ex-*Circe*) F 580
CARABINIERE (ex-*Climene*) F 581

Displacement: 2,000 tons standard (2,700 tons full load)
Dimensions: 366½×43×12½ feet
Guns: 6—3 inch, 62 cal. (single, fully automatic); 2—4½ inch (100 mm.) rocket launchers
A/S weapons: 1 single-barrelled depth charge mortar
Tubes: 2 triple 12 inch (Mk. 32) for A/S torpedoes
Aircraft: Two A/B 204B ASW helicopters
Machinery: 4 diesels. B.H.P.: 16,800=24 kts. 2 gas turbines. B.H.P.: 15,000. 2 shafts. Total S.H.P.: 31,800=29 kts.
Complement: 264

General
The original "Circe" class project was modified in 1962, in respect of both machinery and armament. The new design is an improved version of that of the "Centaur" class combined with that of the "Bergamini" class. They will have similar basic characteristics but a



ALPINO

1965, Italian Navy, Official

heavier displacement and increased engine power. *Circe* and *Climene* were provided for under the 1959-60 programme. Two other ships of the same type were provided for under the 1960-61 programme, but their construction has been cancelled for the time being owing to fiscal considerations. *Circe* was laid down on 27 Feb. 1963, and *Climene* on 9 Jan. 1965, at the Cantieri Navali del Tirreno, Riva Trigoso. Their names were changed to *Alpino* and *Carabiniere*, respectively, in June 1965.

3 Ex-U.S. DE Type. "Altair" Class

Displacement: 1,240 tons standard (1,900 tons full load)
Dimensions: 306 (o.a.)×36×12 (max.) feet
Guns: 3—3 inch, 50 cal., 6—40 mm. Bofors AA., 18—20 mm. AA.
A/S weapons: 1 Hedgehog, 8 D.C.T., 2 D.C. racks
Machinery: General motors diesels. Electric drive. 2 shafts. B.H.P.: 6,000=21 kts. (17½ kts. sea speed)
Oil fuel: 300 tons
Radius: 11,500 miles at 11 kts.
Complement: 160

General
Ex-U.S. destroyer escorts of the "Bostwick" class ceded by the U.S.A. under MDAP. Transferred on 10 Jan. 1951. Officially rated as *Fregate*, but will be re-rated as *Corvette* in the near future. In 1956 a new pentapod foremast was stepped in all three ships in place of the former polemast. A photograph of *Altair* appears in the 1956-57 to 1962-63 editions.

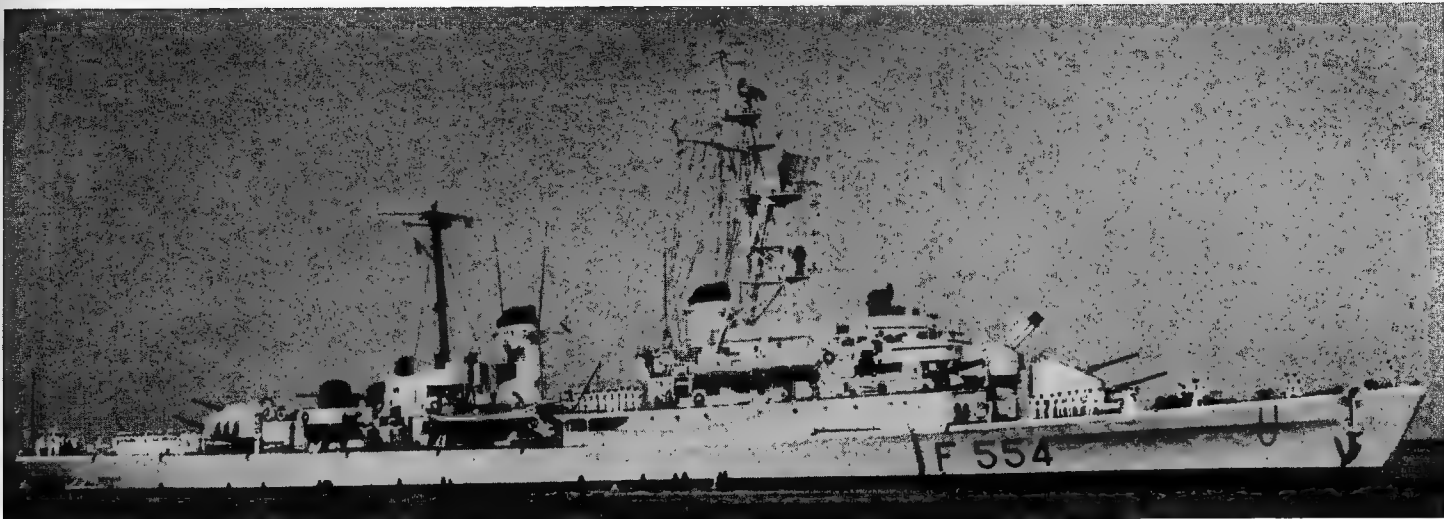


ALDEBARAN

1963, Captain Aldo Fraccaroli

Name	Pennant No.	Builders	Laid down	Launched	Completed
ALDEBARAN (ex-U.S.S. <i>Thornhill</i> , DE 195)	F 590	Federal S.B. & D.D. Co., P. Newark	7 Oct. 1943	30 Dec. 1943	1 Feb. 1944
ALTAIR (ex-U.S.S. <i>Gandy</i> , DE 764)	F 591	Tampa S.B. Co.	1 Mar. 1943	12 Dec. 1943	7 Feb. 1944
ANQROMEDA (ex-U.S.S. <i>Wesson</i> , DE 184)	F 592	Federal S.B. & D.D. Co., P. Newark	29 July 1943	17 Oct. 1943	11 Nov. 1943

Frigates—continued



1963, Giorgio Arca

CENTAURO								
4 "Centauro" Class		Name	Pennant No.	Builders	Laid down	Launched	Completed	
Displacement:	1,680 tons standard (2,220 tons full load)	CANOPO	F 552 (ex-D 570)	Cantieri Navali di Taranto	15 May 1952	20 Feb. 1955	1 Apr. 1958	
Dimensions:	317½ (pp.), 339½ (o.a.)×38×11½ feet	CENTAURO	F 554 (ex-D 571)	Ansaldo, Leghorn	31 May 1952	4 Apr. 1954	5 May 1957	
		CIGNO	F 555 (ex-D 572)	Cantieri Navali di Taranto	10 Feb. 1954	20 Mar. 1955	7 Mar. 1957	
		CASTORE	F 553 (ex-D 573)	Cantieri Navali di Taranto	14 Mar. 1955	8 July 1956	14 July 1957	

General
Cigno (U.S. hull No. DE 1020) and Castore (DE 1021) were built to Italian plans and specifications under the United States off-shore programme for the Italian Navy. All four ships have automatic anti-submarine and medium anti-aircraft armament, and are fitted with United States sonar gear. In 1960 they were given F instead of D pennant numbers.

Gunnery
The 3 inch guns are in twin gunhouses of a new type with the two barrels in the vertical plane, one super-firing over the other. The new two-barrelled 76/62 gun is Italian designed and built by O.T.O., La Spezia. Its rate of fire is 60 rounds per minute with 3,200 feet per second muzzle velocity.

Photographs
A photograph of Castore appears in the 1961-62 and 1962-63 editions.



CIGNO 1961, A. & J. Pavia

4 "Bergamini" Class	
Displacement:	1,410 tons standard (1,650 tons full load)
Dimensions:	298½ (w.l.), 308½ (o.a.)×37½×10½ feet
Guns:	3—3 inch, 62 cal. (single, fully automatic) see Gunnery notes
A/S weapons:	1 single-barrelled automatic depth charge mortar, Type K 113
Tubes:	2 triple for 12 inch A/S torpedoes
Aircraft:	1 A/B-47-J3 helicopter
Machinery:	4 Tosi diesel motors (Bergamini and Rizzo), 4 Fiat diesel motors (Fasan and Margottini), 2 shafts. B.H.P.: 16,000=24.5 kts. 4,000 miles at 18 kts.
Radius:	

General
Light frigates of a new type with diesel motors instead of steam propulsion. Originally they were officially rated as *Corvette Veloci tipo 2*. (Fast Corvettes, "CV 2" Type). Reported to be excellent ships.

Construction
Carlo Bergamini was originally to have been built by Cantieri Navali di Taranto; but the order was cancelled and she was begun at C.R.D.A. di Trieste Yard in May 1959 (built until launch in San Marco yard, Trieste, but completed in Monfalcone yard, both of C.R.D.A.).

Anti-submarine Warfare
The new single-barrelled automatic depth charge mortars have a range of 1,000 yards. Rate of fire: 15 D.C. per minute. The 12-inch torpedoes have a life of 13 minutes at 30 kts.

Gunnery
The 3—3 inch guns have a rate of fire of 65 to 70 rounds per minute.

Design
The plans for these ships underwent many amendments. (See photo of first model in 1957-58 edition, official drawing of second projection in the 1958-59 edition, and revised official drawing of third scheme in the 1959-60 and 1960-61 editions.)

Engineering
The diesels are coupled to the shafts by reduction gearing and Vulcan joints.

Roll Damping
The ships have two Denny-Brown stabilisers reducing the inclination in heavy seas from 20 to 5 degrees.

Photographs
Photographs of Luigi Rizzo appear in the 1961-62 editions.



CARLO BERGAMINI		1964, Italian Navy, Official						
Name	Pen. No.	Builders	Laid down	Launched	Completed			
CARLO BERGAMINI	F 593	San Marco, C.R.D.A., Trieste	19 May 57	16 June 60	23 June 62			
CARLO MARGOTTINI	F 595	Navalmeccanica, Castellammare	26 May 57	12 June 60	5 May 62			
LUIGI RIZZO	F 596	Navalmeccanica, Castellammare	26 May 57	6 Mar. 57	15 Dec. 61			
VIRGINIO FASAN	F 594	Navalmeccanica, Castellammare	6 Mar. 60	9 Oct. 60	10 Oct. 62			



CARLO MARGOTTINI 1963, Captain Aldo Fraccaroli

CORVETTES

4 "De Cristofaro" Class
(New Construction)

LICIO VISINTINI F 546
PIETRO DE CRISTOFARO F 540
SALVATORE TODARO F 550
UMBERTO GROSSO F 541

Displacement: 850 tons standard (940 tons full load)
Dimensions: 246 (pp.), 263½ (o.a.)×33½×9 feet
Guns: 2—3 inch, 62 cal. single fully automatic
A/S weapons: 1 single-barrelled depth charge mortar
Tubes: 2 triple for A/S torpedoes
Machinery: 2 diesels, 2 shafts. B.H.P.: 8,400=23.5 kts. (max.)
Radius: 4,000 miles at 18 kts.
Complement: 133

General

The design of the "De Cristofaro" class is an improved version of that of the "Albatros" class. All four units were ordered in 1962. *Todaro* and *Grosso* were laid down on 21 Oct. 1962 and launched on 24 Oct. and 12 Dec. 1964, respectively, at the Cantieri Ansaldo, Leghorn. *De Cristofaro* was laid down on 30 Apr. 1963 at the Cantieri di Riva Trigoso (Genoa) and launched on 29 May 1965, and *Visintini* will be built at the CRDA, Monfalcone.



PIETRO DE CRISTOFARO

1965, Giorgio Ghiglione

4 "Albatros" Class

AIRONE (ex-PCE 1921) ALCIONE (ex-PCE 1920)
ALBATROS (ex-PCE 1919) AQUILA (ex-Lynx, ex-PCE 1626)

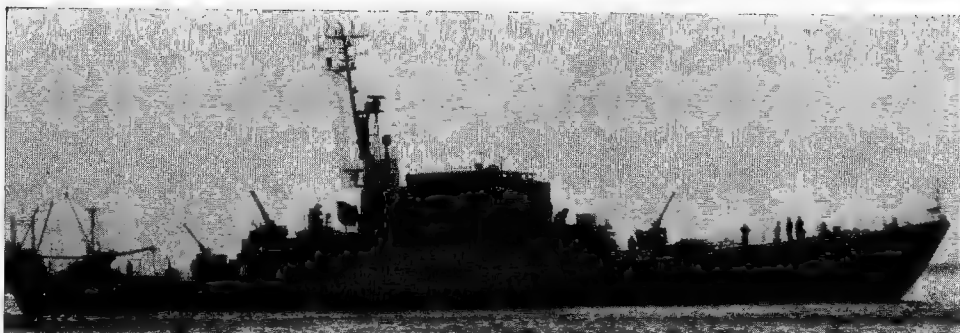
Displacement: 800 tons standard (960 tons full load)
Dimensions: 244 (pp.), 249½ (o.a.)×31×9 feet
Guns: 4—40 mm., 70 cal. Bofors AA. (see *Gunnery*)
A/S weapons: 2 Hedgehogs, Mk. II, 2 D.C.T., 1 D.C. rack (see *Tubes*)
Machinery: Fiat diesels, 2 shafts. B.H.P.: 4,500=21 kts. (sea speed 20 kts.)
Oil fuel: 100 tons
Radius: 2,400 miles at 18 kts.
Complement: 109

General

Airone, *Albatros* and *Alcione* were built in Italy by Navalmeccanica, Castellammare di Stabia. Four other identical ships were built in Italian yards to the off-shore construction order of the United States for Mutual Defense Program general account and handed over to Denmark.

Gunnery

The two S.M.P.-3 type 3-inch guns, originally mounted one forward and one aft were temporarily replaced by two 40 mm. guns in 1963. The ultimate armament will include two 3-inch guns of the new O.T.O. Melara model.



AQUILA (modified armament)

1963, Giorgio Arra

Photographs

A photograph of *Airone* appears in the 1959-60 to 1961-62 editions.

Tubes

All four ships will receive two triple ASW tubes.

Transfer

Aquila, which was built by Breda Marghera Yard, Mestre, Venice, Italy (laid down on 25 July 1953), but initially given to the Netherlands, was ceded to the Italian Navy on 18 Oct. 1961 at Den Helder.

Pennant No.	Name	Launched	Completed
F 545	<i>Airone</i>	21 Nov. 1954	29 Dec. 1955
F 543	<i>Albatros</i>	18 July 1954	1 June 1955
P 544	<i>Alcione</i>	19 Sep. 1954	23 Oct. 1955
F 542	<i>Aquila</i>	31 July 1954	2 Oct. 1956

18 "Ape" Class
(officially rated as *Corvette*)

BAIONETTA F 578 GABBIANO F 571
BOMBARDA F 549 GRU F 566
CHIMERA F 569 IBIS F 561
CORMORANO F 575 MINERVA F 562
CRISALIDE F 547 PELLICANO F 574
DANAIDE F 563 SCIMITARRA F 564
DRIADE F 568 SFINGE F 579
FARFALLA F 548 SIBILLA F 565
FLORA F 572 URANIA F 570

Displacement: 670 tons standard (800 tons full load)
Dimensions: 192½ (w.l.), 211½ (o.a.)×28½×8½ feet
Guns: 4—40 mm., 56 cal. in 7 ships.
3—40 mm., 56 cal. in 9 ships.
2—40 mm., 56 cal. in 2 ships, see *Gunnery*
Tubes: 2—17.7 inch (see *General*)
A/S weapons: 1 Hedgehog, Mk. 15 pr Mk. 10 (see notes), 4 D.C.T., 1 D.C. rack
Machinery: Fiat diesels, 2 shafts. B.H.P.: 3,500=18.5 kts. (15 kts. actual)
Oil fuel: 64 tons
Radius: 2,800 miles at 15 kts.
Complement: 100

General

All launched in 1942-48. Originally fitted for mine-sweeping. The armament of these ships is frequently changed. All have been modified with navigating bridge. Only the eight vessels attached to the Command Training School carry torpedo tubes for training.

Gunnery

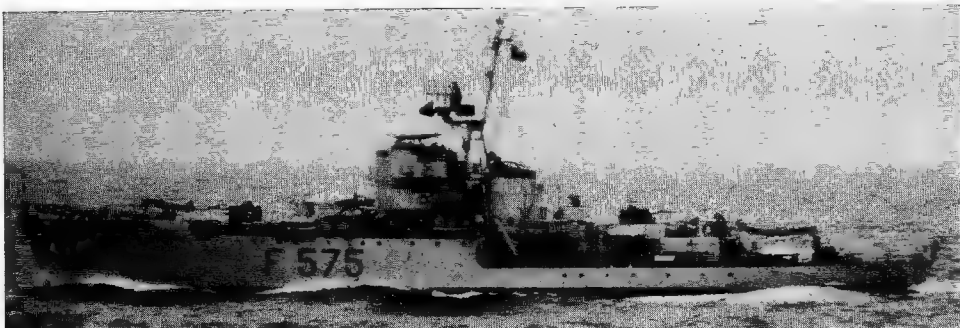
Seven of this class (*Chimera*, *Cormorano*, *Danaide*, *Flora*, *Pellicano*, *Sibilla*, and *Sfinge*) carry 4—40 mm. 56 cal. AA. guns. *Bombarda* and *Gabbiano* carry 2—40 mm., 56 cal. AA. guns and 2—20 mm. 70 cal. AA. guns. Remainder have 3—40 mm., 56 cal. AA. guns (*Cormorano* and *Danaide* have no hedgehog.)

Disposals of "Ape" Class

Ape, F 567 (converted to commandos and frogmen transport), *Venice*, F 577, *Folaga*, F 576, and *Pomona*, F 573, were officially deleted from the list in 1965.

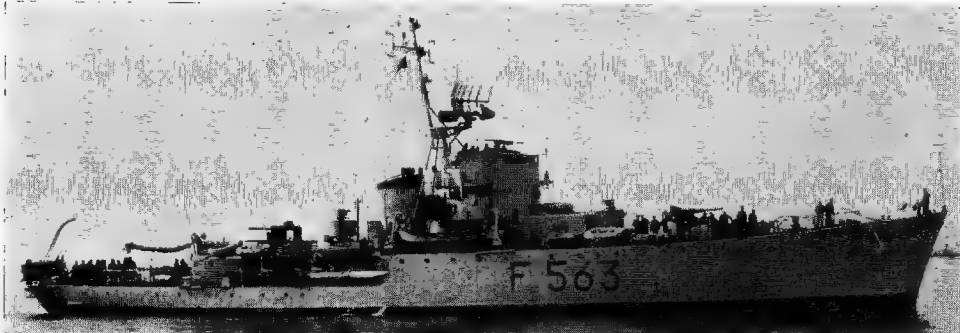
Reclassification

In 1960 the corvettes *Dalno* and *Gazzella* were reclassified, the former as a surveying vessel and the latter as a training ship (see under surveying vessels and training ships on later pages).



CORMORANO

1963, Captain Aldo Fraccaroli



DANAIDE (fitted as leader, with deckhouse. No hedgehog)

1962, Giorgio Arra

Disposals of Older Escorts

Of the "Orsa" class, formerly rated as *Torpediniere* and latterly as *Corvette*, *Orione* was removed from the effective list in 1965 and *Orsa* in 1964.

Of the "Sirio" class, *Sagittario* was removed from the effective list in 1965 and *Cassiopea* and *Sirio* were scrapped in 1960.

Of the "Libra" class, *Libra* was removed from the effective list in 1963, and *Chi* was scrapped in 1960. The corvette *Alabarda* (ex-*Ammiraglio Magnaghi*, ex-*Eritrea*, ex-H.M.S. *Larne*), former British "Algerine" class ocean minesweeper, was deleted from the list in 1965.

SUBMARINES

4 "Toti" Class (New Construction)
Submarine Killer Type

ATTILIO BAGNOLINI
ENRICO DANDOLO
ENRICO TOTI
MOCENIGO

Displacement: 460 tons standard, 524 tons surface (582 tons submerged) revised official figures, 1965
Dimensions: 160×15½×15½ feet
Tubes: 4—21 inch

Machinery: Diesel-electric, 1 shaft, 2 diesels. B.H.P.: 1,260=10 kts. surface 1 electric motor. H.P.: 850=14 kts. submerged
Complement: 18

59 programme, is now being built under the 1964-65 programme by C.R.D.A., Monfalcone, and expected to be completed in 1967. She will be Italy's first submarine to be constructed since the Second World War. The design of these boats has been recast several times.

General
Attilio Bagnolini was originally projected under the 1956-57 Programme by C.N. Taranto. Was originally to have been named *Delfino*, and then *Guglielmo Marconi*, *Enrico Toti*, originally projected under the 1958-

Nuclear Powered Type Study
A design study was made of a nuclear powered submarine, the first projected in Italy, to have been named *Guglielmo Marconi*, but construction is no longer planned (see particulars in the 1964-65 edition).

I Ex-U.S. "Balao" Class

EVANGELISTA TORRICELLI (ex-U.S.S. *Lizardfish*, SS 373)

Pennant No.: S 512
Builders: Manitawac S.B. Co.
Launched: 16 July 1944
Completed: 30 Dec. 1944
Transferred: 1 Apr. 1959

Displacement: 1,526 tons standard, 1,816 tons surface (2,425 tons submerged)
Dimensions: 311½×27×17 feet
Tubes: 10—21 inch (6 bow, 4 stern)
Machinery: 2 2-stroke diesels. B.H.P. 6,500=20 kts. surface 2 electric motors. H.P.: 2,750=10 kts. submerged
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 85



EVANGELISTA TORRICELLI

1963, Giorgio Arra

General
Former United States oceangoing submarine of the "Balao" class. Lent to Italy by the U.S.A. Transferred

to the Italian Navy by the U.S. Navy at Pearl Harbour on 9 Jan. 1960. Was originally to have been renamed *Luigi Torelli*. The 3-inch gun is no longer mounted.

2 Ex-U.S. "Gato" Class

LEONARDO DA VINCI (ex-U.S.S. *Dace*, SS 247)
ENRICO TAZZOLI (ex-U.S.S. *Barb*, SS 220)

Name: Leonardo da Vinci Enrico Tazzoli
Pennant No.: S 510 S 511
Builders: Electric Boat Div. General Dynamics Corp. Electric Boat Div. General Dynamics Corp.
Laid down: 22 July 1942 7 June 1941
Launched: 25 Apr. 1943 2 Apr. 1942
Completed: 23 July 1943 8 July 1942
Transferred: 15 Dec. 1954 31 Jan. 1955

Displacement: 1,525 tons standard, 1,816 tons surface (2,425 tons submerged)
Dimensions: 311½×27×17 feet
Tubes: 10—21 inch (6 bow, 4 stern)



ENRICO TAZZOLI

1963, Captain Aldo Fraccaroli

Machinery: 2 General Motors 2-stroke diesels. B.H.P.: 6,500=20 kts. surface 2 electric motors. H.P.: 2,750=10 kts. submerged
Oil fuel: 250 tons
Radius: 12,000 miles at 10 kts.
Complement: 85

General
Former United States oceangoing submarines of the "Gato" class. Transferred to Italy by the U.S.A. after conversion to guppy snorkel in 1953-54. Modified structure and fairwater. Loan by U.S. was extended for 5 years in 1959.
A photograph of *Leonardo da Vinci* appears in the 1961-62 and 1962-63 editions.

2 "Flutto" Class

PIETRO CALVI (ex-Barlo, ex-Uit 7, ex-Barlo)

Pennant No.: S 503
Builders: C.R.D.A., Trieste (1944) C.N. Taranto (1961)
Laid down: 15 Mar. 1943
Launched: 23 Jan. 1944
Completed: Dec. 1957
Rebuilt: 1961

Displacement: 800 tons standard, 905 tons surface, (1,107 tons submerged)
Dimensions: 216½×23×13½ feet
Tubes: 4—21 inch
Machinery: 2 MAN diesels, 1 shaft. B.H.P.: 2,700=15 kts. surface, 3 electric motors=12.5 kts. submerged
Radius: 10,000 miles at 8 kts.
Complement: 80

General
Sunk by Allied air-raid on 16 Mar. 1945 after having been renamed *Uit 7*. She was reconstructed with a tear



PIETRO CALVI

Added 1964, Captain Aldo Fraccaroli

drop bow and modernised during 1957-59, being re-launched on 21 June 1959.

In Mar. 1961 her original name *Barlo* was changed to *Pietro Calvi*.

VORTICE (ex-P.V. 2, ex-Vortice)

Pennant No.: S 502
Builders: C.R.D.A., Monfalcone
Laid down: 3 Jan. 1942
Launched: 23 Feb. 1943
Completed: 21 June 1943

Displacement: 781 tons standard, 901 tons surface, 1,095 tons submerged
Dimensions: 207½×22½×16 feet
Tubes: 4—21 inch (originally 6—21 inch)
Machinery: 2 FIAT diesels, 2 shafts. B.H.P.: 2,400=15 kts. surface, 2 electric motors. H.P.: 1,350=7 kts. submerged
Radius: 12,500 miles at 8 kts.
Complement: 52

General
One of eight boats of the "Flutto" Class which joined the Royal Italian Navy during the war. She was



VORTICE

1965, Italian Navy, Official

laid up under the terms of the Peace Treaty. Her subsequent reconditioning was completed at the end of 1952.

Disposal
The old submarine *Giada* of the "Acciaio" class was removed from the effective list in 1964.

OCEAN MINESWEEPERS



SQUALO 1963, Captain Aldo Fraccaroli



STORIONE Added 1960
4 Ex-U.S. MSO Type "Salmone" Class

SALMONE (ex-MSO 507) M 5430	SQUALO (ex-MSO 518) M 5433
SGOMBRO (ex-MSO 517) M 5432	STORIONE (ex-MSO 506) M 5431
Displacement:	665 tons standard (750 tons full load)
Dimensions:	165 (w.l.), 173 (o.a.)×35×10 feet
Guns:	1—40 mm., 56 cal. AA.
Machinery:	2 diesels, 2 shafts, B.H.P.: 1,600=14 kts.
Oil fuel:	46 tons
Range:	3,000 miles at 10 kts.
Complement:	74

General
Former United States "Agile" class minesweepers with wooden hulls and non-magnetic equipment. The diesels are of non-magnetic stainless steel alloy. Controllable pitch propellers. All transferred by the U.S. Navy. *Storione*, launched on 13 Nov. 1954, was built by Martinolich S.B. Company, San Diego, and transferred on 23 Feb. 1956. *Salmone*, launched on 19 Feb. 1955 was built by Martinolich S.B. Co., and transferred from United States at San Diego, Calif., on 17 June 1956 under the terms of the Mutual Defense Assistance Program. *Sgombro* and *Squalo* were delivered in June 1957.

Photographs
A much larger photograph of *Storione* appears in the 1957-58 to 1959-60 editions.

GENERAL PURPOSE VESSELS



DR 303 1965, Italian Navy, Official

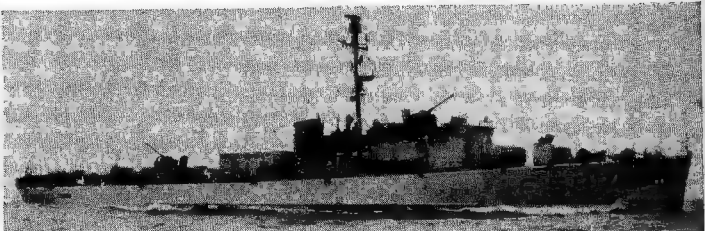
16 Ex-British Trawler Minesweepers

DR 301 (ex-Burra)	DR 306 (ex-Egilsay)	DR 311 (ex-Mousa)
DR 302 (ex-Cumbræ)	DR 307 (ex-Minuet)	DR 312 (ex-Gavotte)
DR 303 (ex-Unst)	DR 308 (ex-Twestep)	DR 313 (ex-Foula)
DR 304 (ex-Staffa)	DR 309 (ex-Grain)	DR 314 (ex-Ensay)
DR 305 (ex-Filla)	DR 310 (ex-Othello)	DR 315 (ex-Strama)
		DR 316 (ex-Hornpipe)
Displacement:	523 to 545 tons standard (750 to 780 tons full load)	
Dimensions:	150 (pp.), 164 (o.a.)×27½×11 feet	
Guns:	3—20 mm. AA. (see Notes)	
Machinery:	Triple expansion, I.H.P.: 950=11 kts.	
Boiler:	1 cylindrical	
Fuel:	180 to 189 tons coal	
Complement:	36	

General
All Admiralty design minesweeping trawlers of the "Isles," "Dance" and "Shakespearean" classes purchased from Great Britain. NATO Pennant Nos. M 5301 to 5361, respectively. The 3-inch gun in all ships was removed and one 20 mm. AA. gun added in 1956. Formerly classed as minesweepers (*Dragamine*), MSA, but rated as auxiliary ships for general purposes in 1962.

A photograph of DR 301 appears in the 1958-59 to 1964-65 editions.

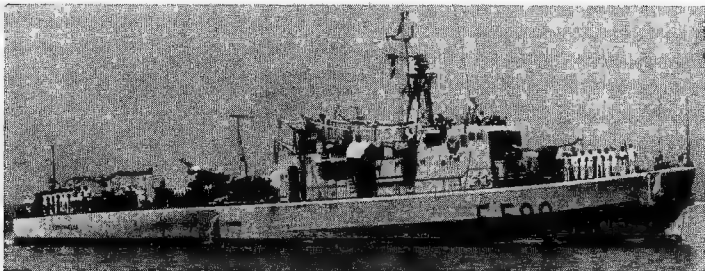
PATROL VESSELS



VEDETTA 1963, Italian Navy, Official
1 Ex-U.S. PC Type Rated as Coastal Escort Vessel (Corvetta)

VEDETTA (ex-Belay Deress, ex-U.S.S. PC 1616) Pennant No.: F 597	
Displacement:	325 tons standard (450 tons full load)
Dimensions:	170 (pp.), 174 (o.a.)×23×10 feet
Guns:	2—40 mm., 56 cal. Bofors AA., 2—20 mm. AA.
Machinery:	4 diesels, 2 shafts, B.H.P.: 3,240=19 kts.
A/S weapons:	1 Hedgehog, 4 D.C.T., 2 D.C. racks
Range:	3,000 miles at 12 kts.
Complement:	60

General
This ship has a chequered history. She was built at Brest, France, as a United States off-shore order under the Mutual Defense Assistance Program, Laid down on 17 Dec., 1953. Launched on 30 Sep. 1954. Completed on 23 Aug. 1955. She was originally intended for Germany, but a change in U.S. plans resulted in the ship never being delivered, and she was finally given to Ethiopia under the Military Aid Program. Transferred to Ethiopia at Bremerhaven, Germany, by the U.S. Navy in Jan. 1957. Officially taken over from the American flag at Massawa, Ethiopia, in mid-1957. Later, the ship was found to be too much for the state of naval training in Ethiopia, and she was returned to the U.S. Navy. She was then sold to Italy, being transferred to the Italian Navy on 3 Feb. 1959, and officially classified as a *nave pattuglia* (patrol vessel). Air-conditioning equipment is installed. Refitted in La Spezia Navy Yard in 1959. Employed as a Fishery Protection Vessel.



SENTINELLA 1963, Giorgio Arra

1 Submarine Chaser Rated as Coastal Escort Vessel (<i>Corvetta</i>)	
SENTINELLA (ex-VAS 470) Pennant No.: F 598	
Displacement:	300 tons standard (340 tons full load)
Dimensions:	154 (pp.), 163 (o.a.)×21½×7 feet
Guns:	2—40 mm., 56 cal. AA.
Torpedoes:	2—17.7 inch A/S
A/S weapons:	1 Hedgehog, Mk. 10, 2 D.C.T., 1 D.C. rack
Machinery:	4 diesels, 2 shafts, B.H.P.: 9,000=32 kts. (<i>designed</i>)
Sea speed:	27 kts.
Oil fuel:	28 tons
Complement:	60

General
Ordered in 1952 and laid down on 21 June 1954 at C.R.D.A. Monfalcone yard. Launched on 14 Nov. 1955. Commissioned on 20 Sep. 1956. Rated specifically as a corvette under the generic category of coastal escort vessels. Assigned to motor torpedo boat flotillas as leader

SUPPORT GUNBOATS (Cannoniere d'appoggio)



MASTINO 1963, Giorgio Arra
6 "Alano" Class (Ex-U.S. Landing Ships, Support/Large)

ALANO (ex-LSSL 34)	MASTINO (ex-LSSL 62)	SEGUGIO (ex-LSSL 64)
BRACCO (ex-LSSL 38)	MOLOSSO (ex-LSSL 63)	SPINONE (ex-LSSL 118)
Displacement:	246 tons standard (430 tons full load)	
Dimensions:	153 (w.l.), 158½ (o.a.)×23½×5½ feet	
Guns:	5—40 mm., 56 cal.; 4—20 mm., 70 cal.; 4—12.7 mm.	
Machinery:	8 Gray Marine diesels; 2 shafts, B.H.P.: 900=12.5 kts. (Sea speed 10 kts.)	
Oil fuel:	87 tons	
Radius:	8,000 miles at 10 kts.	
Complement:	73	

General
Transferred from the U.S.A. on 25 July 1951, under the Mutual Defence Assistance Programme. Formerly designated LCI (L) (Landing Craft, Infantry, Large), NATO pennant numbers L 9851 to L 9856, respectively.

A photograph of *Alano* appears in the 1955-56 to 1957-58 editions, and of *Segugio* in the 1957-58 to 1962-63 editions.

COASTAL MINESWEEPERS



FRASSINO 1965, A. & J. Pavla



MANDORLO 1962, Italian Navy, Official

18 "Abete" Class

- ABETE M 5501

ACACIA M 5502

BETULLA M 5503

CASTAGNO M 5504

CEDRO M 5505

CILIGLIO M 5506
- FAGGIO M 5507

FRASSINO M 5508

GELSO M 5509

LARICE M 5510

MANDORLO (ex-Salice) M 5519

NOCE M 5511
- OLMO M 5512

ONTANO M 5513

PINO M 5514

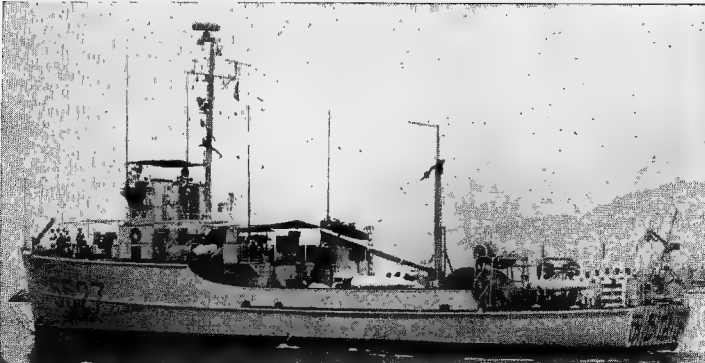
PIOPIO M 5515

PLATANO M 5516

QUERCIA M 5517

Displacement: 378 tons standard (405 tons full load)
Dimensions: 138 (pp.), 144 (o.a.)×26½×8½ feet
Guns: 2—20 mm., 70 cal. AA.
Machinery: 2 diesels, 2 shafts. B.H.P.: 1,200=14 kts.
Oil fuel: 25 tons
Radius: 2,500 miles at 10 kts.
Complement: 38

General
Wooden hulled *Dragomine Costieri* constructed throughout of materials with the lowest possible magnetic attraction to attain the greatest safety factor when sweeping for magnetic mines. All transferred by the U.S. in 1953-54. Original hull numbers AMS 72-76, 79-82, 88-90, 133-137. NATO numbers above.
Mandorlo (ex-U.S.S. MSC 280), transferred at Seattle on 16 Dec. 1960, is of slightly different type, see photograph above, and is used as MHC (minehunter).
A photograph of Ciligio appears in the 1956-57 to 1961-62 editions.



SANDALO 1962, Giorgio Arra

19 "Agave" Class

- AGAVE M 5531

ALLORO M 5532

EDERA M 5533

GAGGIA M 5534

GELSOMINO M 5535

GIAGGIOLO M 5536
- GLICINE M 5537

LOTO M 5538

MIRTO M 5539

TIMO M 5540

TRIFOGLIO M 5541

VISCHIO M 5542
- BAMBU *M 5521

EBANO *M 5522

MANGO *M 5523

MOGANO *M 5524

PALMA *M 5525

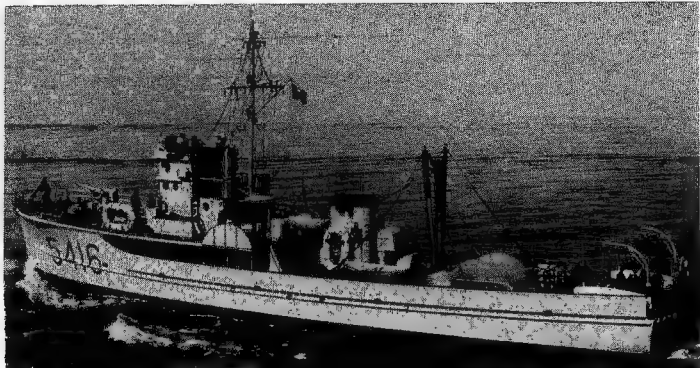
ROVERE *M 5526

SANDALO *M 5527

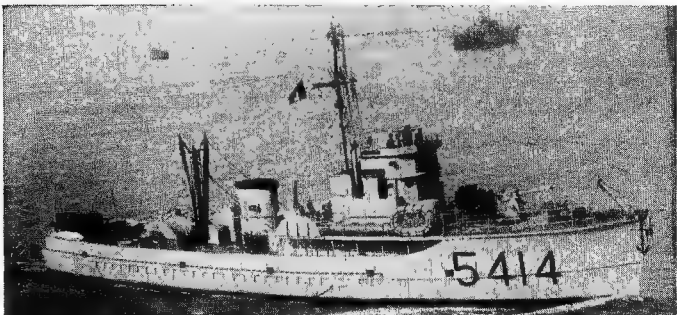
Displacement: 375 tons standard (405 tons full load)
Dimensions: 144 (o.a.)×26½×8½ feet
Guns: 2—20 mm., 70 cal. AA.
Machinery: 2 diesels, 2 shafts. B.H.P.: 1,200=14 kts.
Oil fuel: 25 tons
Radius: 2,500 miles at 10 kts.
Complement: 38

General
Non-magnetic minesweepers of composite wooden and alloy construction similar to those transferred from the U.S. but built in Italian yards. *Last 7 were built by C.R.D.A., Monfalcone, and launched in 1956. NATO numbers above.
A photograph of Alloro appears in the 1959-59 to 1961-62 editions.

Coastal Minesweepers—continued



GLADIOLO 1965, Italian Navy, Official



TULIPANO 1954, Ing. L. Accorsi

11 "Azalea" Type (One funnel)

- AZALEA (ex-BYMS 2142) M 5401

BEGONIA (ex-BYMS 2073) M 5402

DALIA (ex-BYMS 2141) M 5404

FIORDALISO (ex-BYMS 2277) M 5405

GARDENIA (ex-BYMS 2150) M 5406

GLADIOLO M 5416
- MAGNOLIA (ex-BYMS 2206) M 5408

ORCHIDEA (ex-BYMS 2037) M 5412

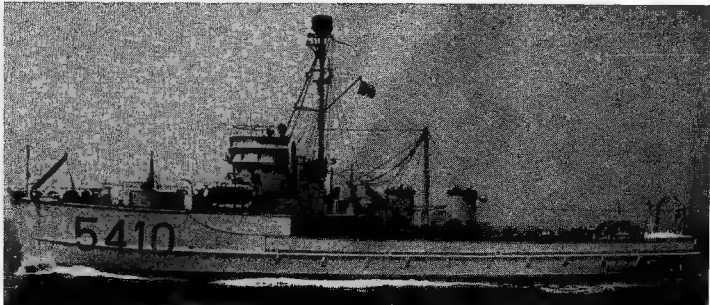
PRIMULA (ex-BYMS 2278) M 5413

TULIPANO (ex-BYMS 2194) M 5414

VERBENA (ex-BYMS 2280) M 5415

Displacement: 290 tons standard (335 tons full load)
Dimensions: 136 (o.a.)×24½×6 feet
Guns: 3—20 mm., 70 cal. AA.
Machinery: 2 General Motors, diesels. B.H.P.: 1,000=13 kts.
Oil fuel: 19 tons
Radius: 2,500 miles at 8 kts.
Complement: 33

General
Formerly designated DR 401, 402, 403, 411, 404, 417, 405, 406, 407, 416, 408, respectively. Derricks abaft funnel NATO Pennant Numbers above.



NARCISO 1965, Italian Navy, Official

6 "Anemone" Type (Two funnels)

- ANEMONE (ex-BYMS 2009) M 5400

BIANCOSPINO (ex-BYMS 2012) M 5403

GERANIO (ex-BYMS 2014) M 5407
- MUGHETTO (ex-BYMS 2023) M 5409

NARCISO (ex-BYMS 2024) M 5410

OLEANDRO (ex-BYMS 2027) M 5411

Displacement: 245 tons trials (338 tons full load)
Dimensions: 130 (w.l.), 136 (o.a.)×24½×8½ (max.) feet
Guns: 3—20 mm. AA.
Machinery: 2 General Motors, diesels, 2 shafts. B.H.P.: 1,000=14 kts.
Radius: 2,500 miles at 8 kts.
Complement: 30

General
Formerly designated DR 409, 410, 412, 413, 414, 415, respectively. Mainmast derrick between funnels. NATO Pennant Nos. above.
Both Types
All the above 17 BYMS (MSCo) type vessels were built in 1942-43 and acquired from the U.S. in July 1947. One 20 mm. AA. gun was added in 1956.

Disposals of Fast Minesweepers
The four fast minesweepers (ex-ocean-going torpedo boats) were removed from the effective list, *Nicola Fabrizi* in 1957, and *Antonio Mosto*, *Giacinto Carini* and *Giuseppe Abba* in 1958.
Disposals of Small Minesweepers
The small steam minesweepers DR 20, DR 32, DR 34, DR 38, DR 40 and DR 41, have been scrapped.

MOTOR GUNBOATS (Motocanniere)

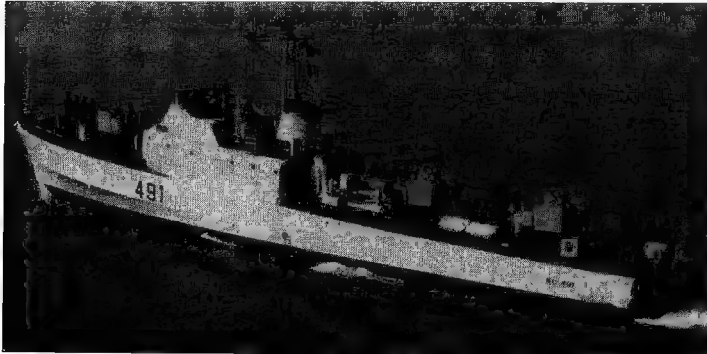


MC 590 1965, Italian Navy Official

4 "MC 590" Class. Convertible Type (New Construction)

MC 590	MC 591	MC 592 (ex-493)	MC 593 (ex-494)
Displacement:	188 tons standard (215 tons full load)		
Dimensions:	150.231X54 feet		
Guns:	As Gunboat: 3—40 mm., 70 cal. or 2—40 mm., 70 cal. and 1—105 mm. rocket launcher		
	As Fast Minelayer: 1—40 mm. AA. with 8 mines		
	As Torpedo Boat: 1—40 mm. 70 cal.		
Tubes:	As Torpedo Boat: 4—21 inch		
Machinery:	2 diesels, B.H.P.: 7,600 and Bristol Siddeley Marine Proteus gas turbine, S.H.P. 4,250. Total H.P.: 11,850—40 kts. (sea speed)		

General
MC 590 was laid down by Cantiere del Tirreno at Riva Trigosa on 30 Apr. 1963, launched on 9 Jan. 1965 and commissioned on 10 Apr. 1965. MC 591 was laid down by C.R.D.A., Monfalcone on 11 June 1963 and launched on 11 Apr. 1965. MC 592 was laid down by Taranto Navy Yard in 1964 for launch about May 1965. Special convertible version designed to carry mines or depth charges. Can be converted in 24 hours to a motor gunboat, to a motor torpedo boat, or to a fast minelayer.



MC 491 1965, Captain Aldo Fraccaroli

2 "MC 491" Class. Convertible Type

MC 491	MC 492
Displacement:	170 tons standard (206 tons full load)
Dimensions:	131.1X21X5 feet
Guns:	As Gunboat: 3—40 mm., 70 cal. or 2—40 mm., 70 cal. and 1 105 mm. rocket launcher
	As Torpedo Boat: 1—40 mm., 70 cal.
Tubes:	As Torpedo Boat: 4 17.7 inch
Machinery:	2 Fiat diesels, and Metrovick gas turbine, 3 shafts. Total H.P.: 11,700=40 kts.

General
A new type of convertible gunboats, improved version of MC 490 prototype. Special convertible version (fast minelayer) carries 8 mines and 1—40 mm. gun. Both built by Arsenale M.M. Taranto. MC 491 was laid down on 4 Jan. 1958, launched on 22 Nov. 1960 and commissioned in July 1963. MC 492 was laid down on the same slip on 22 Nov. 1960. She is being converted to an improved design.

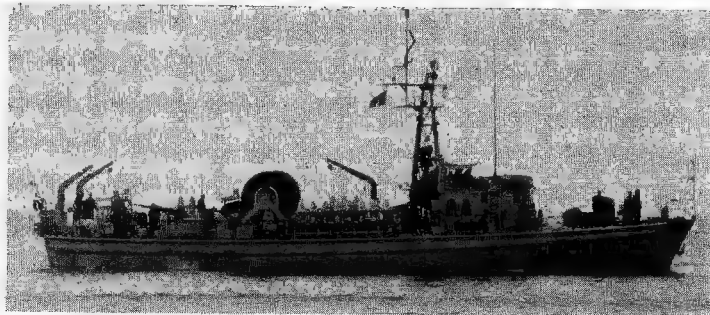


MC 490 1963, Captain Aldo Fraccaroli

MC 490	I Convertible Type
Displacement:	160 tons standard (190 tons full load)
Dimensions:	129.1X19.1X5 feet
Guns:	2—40 mm. AA.
Tubes:	4—17.7 inch
Machinery:	4 diesels, 4 shafts. B.H.P.: 10,000=35 kts. (accelerating from 20 kts. to full speed very rapidly)

General
MC 490 was authorised in Nov. 1950, launched on 21 Jan. 1954 from C.R.D.A. Monfalcone Yard, and commissioned on 21 July 1955. Two rudders.
Disposal
The old motor gunboat MC 485 (ex- MS 621, ex-Toros), former German S-boat, was officially deleted from the list in 1965.

INSHORE MINESWEEPERS



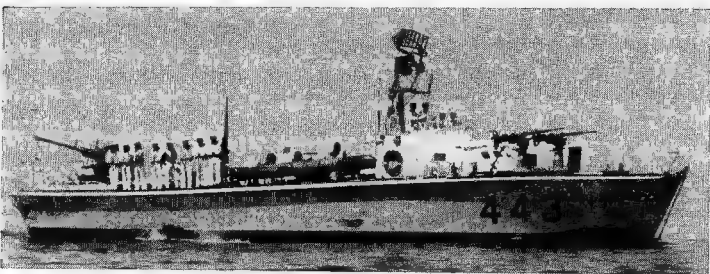
ARSELLA 1964, Giorgio Arra
20 NATO "Ham" Type (Dragamine Litoranei) MSI

"Aragosta" Class

ARAGOSTA M 5450	GAMBERO M 5457	POLIPO (ex-Polpo) M 5463
ARSELLA M 5451	GRANCHIO M 5458	PORPORA M 5464
ASTICE M 5452	MITILO M 5459	RICCIO M 5465
ATTINIA M 5453	OSTRICA M 5460	SCAMPO M 5466
CALAMARO M 5454	PAGURO M 5461	SEPIA M 5467
CONCHIGLIA M 5455	PINNA M 5462	TELLINA M 5468
DROMIA M 5456		TOTANO M 5469
Displacement:	119 tons standard (130 tons full load)	
Dimensions:	106X21X6 feet	
Guns:	1—20 mm. (not mounted)	
Machinery:	2 diesels, B.H.P.: 1,000=14 kts.	
Oil fuel:	15 tons	
Radius:	2,000 miles at 9 kts.	
Complement:	14	

General
Similar to the British "Ham" class. All constructed in Italian yards for the Italian Navy in 1955-57 to the order of NATO. All names of small sea inhabitants. NATO Pennant Nos. above.
Photographs
A photograph of Riccio appears in the 1958-59 to 1961-62 editions, and of Aragosta in the 1962-63 and 1963-64 editions.

MOTOR TORPEDO BOATS (Motosiluranti)



MS 443 1963, Giorgio Arra

4 Ex-U.S. Higgins Type

MS 441 (ex-841)	MS 443 (ex-843)	MS 444 (ex-844)	MS 453 (ex-853)
Displacement:	43 tons standard (51 tons full load)		
Dimensions:	78X20X6 feet		
Guns:	1—40 mm., 56 cal., 2 or 3—20 mm., 70 cal.		
Torpedoes:	2—17.7 inch		
Machinery:	3 ASM/185/CRM (Italian) petrol motors, 3 shafts.		
Fuel:	B.H.P.: 4,500=30 to 34 kts.		
Radius:	8 tons		
Complement:	1,000 miles at 20. kts.		
	15		

General
Former U.S. PT boats of the Higgins type. Refitted in Italy during 1949-53. Two 17.7 inch torpedoes carried. No tubes. New radar installed. MS 441 is converted into a fast transport for commandos and frogmen.

Engineering
Before reconstruction these boats were engined with three Packard 12 cyl. petrol motors of 4,050 B.H.P. equal to a sea speed of 29 kts.

Disposals
Of this class, MS 442 (ex-842), MS 451 (ex-851) and MS 452 (ex-852) were officially deleted from the list in 1965.

4 Italian MS Type

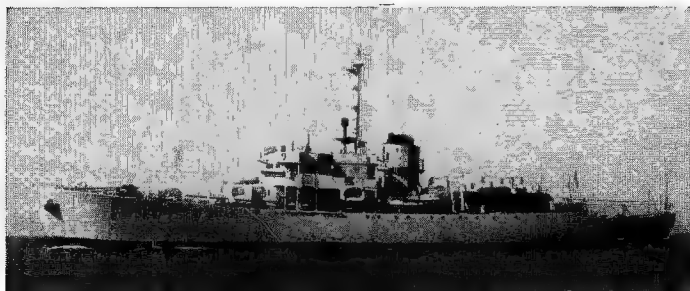
MS 472 (ex-612)	MS 473 (ex-613)	MS 474 (ex-614)	MS 481 (ex-615)
Displacement:	72 tons standard		
Dimensions:	92X15X5 feet		
Guns:	4—20 mm. M.G. (see Notes)		
Tubes:	2—17.7 inch		
Machinery:	Petrol motors, 3 shafts. B.H.P.: 4,500=26 to 33 kts.		
Radius:	600 miles at 16 kts.		

General
Built in 1942-43 at C.R.D.A. Monfalcone yard; converted as MV (motovedette) with no tubes under the Peace Treaty. Reconverted in 1951-53. MS 472 and MS 473 were refitted as convertible boats in 1960 and MS 474 and MS 481 in 1961. The armament of these interchangeable boats is subject to frequent alterations.

Engineering
The installation of modern motors (three ASM/185/CRM) in MS 472, MS 473, MS 474 and MS 481, increased the B.H.P. from 3,450 to 4,500.

Disposals
Of this class, MS 482 (ex-616), MS 483 (ex-617) and MS 484 (ex-618) were removed from the effective list in 1963, and MS 471 (ex-611) and MS 475 (ex-619) in 1965.

Of the former United States PT boats of the Elco Vosper type, MS 421, MS 423 and MS 424 were removed from the effective list in 1958. MS 433, MS 434, MS 454, MS 461 and MS 464 in 1959, MS 422, MS 462 and MS 463 in 1960, and MS 431 and MS 432 in 1961.

SURVEYING VESSELS (Navi Idrografiche)

STAFFETTA 1958, Italian Navy, Official

1 Ex-British "Flower" Type

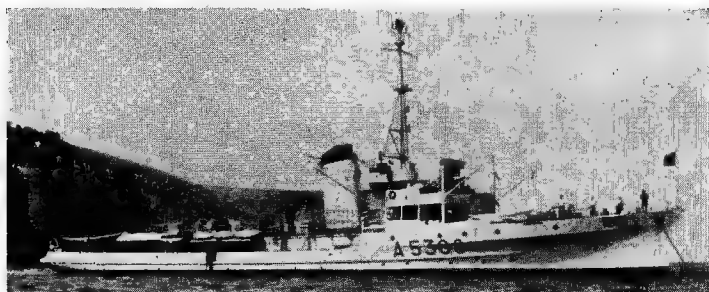
STAFFETTA (ex-*Elbano*, ex-U.S.S. *Prudent*, PG 96, ex-H.M.S. *Privet*)

Displacement: 1,020 tons standard (1,280 tons full load)
 Dimensions: 205 (o.a.) \times 33 \times 14 $\frac{1}{2}$ feet
 Guns: 2—20 mm. AA.
 Machinery: Triple expansion, I.H.P.: 2,750=15 kts.
 Boiler: 2 cylindrical
 Oil fuel: 250 tons
 Radius: 5,500 miles at 8 kts.

General

Former British "Flower" class corvette (later re-rated frigate). Built by Morton Engine & D.D. Co., Montreal, Canada, engined by Port Arthur S.B. Co. Laid down on 14 Aug. 1942. Launched on 4 Dec. 1942. Completed on 16 Aug. 1943. Converted for hydrographic duties and commissioned in 1953. NATO Pennant No.: A 5307.

The oceanographic vessel *Bannock* (ex-U.S.S. *Bannock*, ATF 81), former U.S. fleet ocean tug was converted and is manned by the National Research Council and is not on the Navy List; she wears the mercantile flag. (See data in the 1964-65 edition, page 151).



DAINO 1962, Italian Navy, Official

1 Ex-German "Daino" Type

DAINO (ex-B 2, ex-M 802)

Displacement: 605 tons standard (838 tons full load)
 Dimensions: 224 \times 29 $\frac{1}{2}$ \times 7 $\frac{1}{2}$ feet
 Machinery: Triple expansion, 2 shafts, 2,400=14 kts.
 Boiler: 2 Schulz-Marine
 Oil fuel: 142 tons
 Complement: 80

General

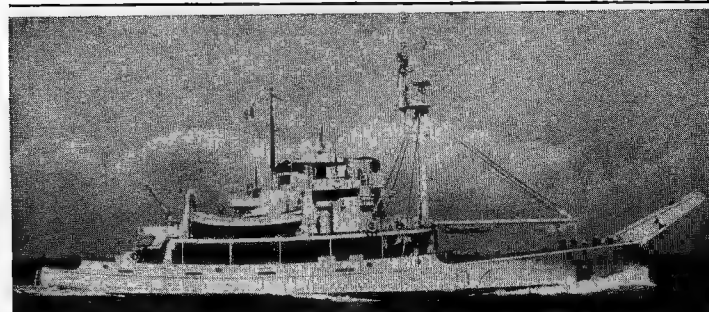
Former German coal burning minesweeper. Acquired on 20 July 1949, when she was classed as "Nave Ausiliare" (Auxiliary Ship) but subsequently converted to burn oil fuel and classed as "Nave Pattuglia" (Patrol Ship). Reclassified as a minesweeper in 1954 (Pennant No. M 5339). Again reclassified as a coastal escort vessel (Nave Scorta Costiera) on 1 June 1956 and as Corvetta in 1959 with F pennant number 542. Reclassified as a surveying vessel in 1960 and her armament of 1—3.9 inch gun, 3—40 mm. AA, guns and 2 D.C.T. removed.

Of two sister ships, *Antilope* (ex-B 1, ex-M 328) was removed from the effective list in 1958, and *Gazzella* became a training ship in 1960 (see later page).

Disposals

The surveying vessel *Azio* was discarded in 1957. Of the surveying boats, DV 133 and DV 135 were scrapped in Aug. 1953, DV 401, DV 405, DV 406, DV 407 and DV 415 in 1957-58, DV 402, DV 403, DV 404, DV 411, DV 412, DV 413 and DV 414 in 1959-60 and DV 408 and DV 409 in 1965.

All seven boats of the VAS (Vedette-Sommergibile) type viz. VAS 491, VAS 492, VAS 493, VAS 494, VAS 495, VAS 496 and VAS 497, were discarded in 1957.

NETLAYERS (Posareti)

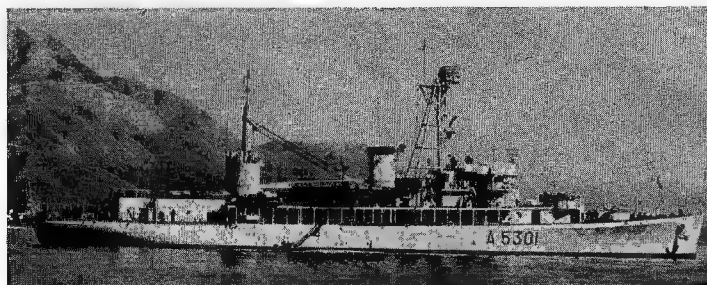
ALICUDI 1960, Italian Navy, Official

2 NATO Type

ALICUDI Displacement: 680 tons standard (834 tons full load)
 Dimensions: 151 $\frac{1}{2}$ (pp.), 165 $\frac{1}{2}$ (o.a.) \times 33 $\frac{1}{2}$ \times 10 $\frac{1}{2}$ feet
 Guns: 1—40 mm., 70 cal. AA.; 4—20 mm., 70 cal. AA.
 Machinery: Diesel-electric. H.P.: 1,200=12 kts.

General

Built to the order of NATO. Laid down on 22 Apr. 1954 and 19 July 1954, respectively by Ansaldo, Leghorn, launched on 11 July 1954 and 26 Sep. 1954. Pennant Nos.: A 5304 and A 5305, respectively.

SUPPORT SHIP (Nave appoggio)

PIETRO CAVEZZALE 1964, Captain Aldo Fraccaroli

1 Ex-U.S. AVP Type

PIETRO CAVEZZALE (ex-U.S.S. *Oyster Bay*, AVP 28, ex-AGP 6)

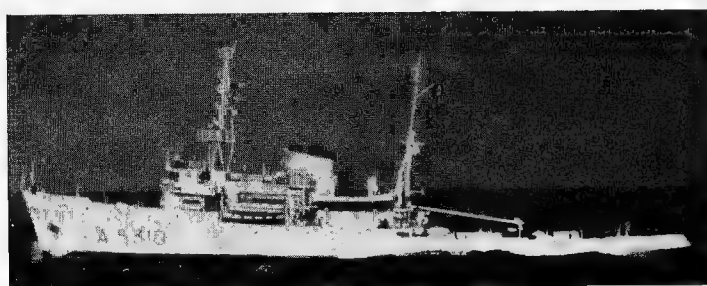
Displacement: 1,766 tons standard (2,800 tons full load)
 Dimensions: 300 (w.l.), 311 $\frac{1}{2}$ (o.a.) \times 41 \times 13 $\frac{1}{2}$ (max.) feet
 Guns: 2—40 mm., 56 cal. AA.
 Machinery: 2 sets diesels, 2 shafts, B.H.P.: 6,080=16 kts.
 Oil fuel: 400 tons
 Radius: 10,000 miles at 11 kts.
 Complement: 200

General

Former United States seaplane tender (previously motor torpedo boat tender) of the "Barnegat" class, built at Lake Washington Shipyard and launched on 7 Sep. 1942. Recommissioned and transferred from the United States Navy to the Italian Navy under the Mutual Defense Assistance Program on 23 Oct. 1957 and renamed. Pennant number A 5301.

Disposal

The very old support tender *Ercolo* (ex-*Ciclope*) was removed from the effective list in 1964.

RESCUE AND SALVAGE SHIP (Nave Salvataggio)

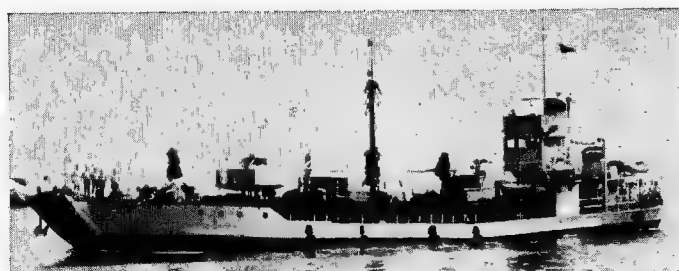
PROTEO 1963, Captain Aldo Fraccaroli

PROTEO (ex-*Perseo*, ex-*Proteo*)

Displacement: 1,865 tons standard (2,147 tons full load)
 Dimensions: 220 $\frac{1}{2}$ (pp.), 248 (o.a.) \times 38 \times 15 $\frac{1}{2}$ (mean), 21 (max.) feet
 Guns: Removed
 Machinery: 2 diesels; B.H.P.: 4,800=16 kts. (see Notes)
 Radius: 7,500 miles at 13 kts.

General

Laid down at Cantieri Navali Riuniti, Ancona, in 1943. Suspended in 1944. Seized by Germans and transferred to Trieste. Construction recommenced at Cantieri Navali Riuniti, Ancona, in 1949. Diesels at 250 r.p.m. drive a single propeller through hydraulic couplings and reduction gearing. Formerly mounted one 3.9 inch AA. gun and two 20 mm., 70 cal. AA. guns, NATO Pennant No.: A 5310.

REPAIR CRAFT (Motoofficine Costiere)

MOC 1201 1955, A. & J. Pavia

7 Ex-British LCT(3) Type

MOC 1201 **MOC 1203** **MOC 1205** **MOC 1208**
MOC 1202 **MOC 1204** **MOC 1207**

Displacement: 350 tons standard (640 tons full load)
 Dimensions: 192 \times 31 \times 7 feet
 Guns: 2—40 mm., 2—20 mm. (2 ships have 2—40 mm. and 1 ship has 3—20 mm.)
 Machinery: Diesel= 8 kts.

General

Former British landing craft of the LCT (3) type converted to repair craft. MOC 1207 and MOC 1208 are ammunition transports. Now carry new NATO Pennant Nos.: A 5331 to 5338, respectively.

TRANSPORTS (Navi Trasporto)



VESUVIO (helicopter tender)

1965, Dr. Ing. Luigi Accorci



STROMBOLI

1963, Captain Aldo Fraccaroli

STROMBOLI

2 OTO Type

VESUVIO

Displacement: 2,848 tons light, 4,713 tons standard (6,160 tons full load)
 Dimensions: 334½ (o.a.)×46×21½ feet
 Guns: Stromboli: 1—3.9 inch, 4—40 mm., 56 cal.
 Vesuvio: 2—40 mm. Bofors AA, forward only
 Machinery: One set double reduction geared turbines, S.H.P.; 3,700—12.5 kts.
 Boilers: 3 water tube, Oil fuel.
 Radius: 8,150 miles at full load

General

Both built by Odero-Terni-Orlando yard, La Spezia. Stromboli was completed in 1948 and Vesuvio in 1954. Stromboli is fitted out as Flagship of the Logistic Support Group of the Fleet. The 3.9 inch gun aft has been removed from Vesuvio, which has been converted into a depot ship or tender for the helicopters carried by Italian warships; she has a hangar abait the funnel and a flight deck laid on right aft. NATO Pennant Nos.: A 5329 and A 5330, respectively.



ETNA

1963, Captain Aldo Fraccaroli

I Ex-U.S. "Andromeda" Class

ETNA (ex-U.S.S. Whitley, AKA 91)

Displacement: 7,430 tons light, (14,200 tons full load)
 Measurement: 5,145 tons gross, 7,700 tons deadweight
 Dimensions: 435 (w.l.), 459½ (o.a.)×63×26½ (max.) feet
 Machinery: G.E. geared turbines, 1 shaft, S.H.P.: 6,000=16.5 kts.
 Boilers: 2 Combustion Engineering

General

Former United States attack cargo ship. Built by Moore D.D. Co., Oakland, California. Launched on 22 June 1944. First commissioned on 21 Sep. 1944. C2—S—B 1 type. Transferred to Italy at Norfolk, Virginia in Feb. 1962 under MAP. Rated as Nave trasporto mezzi da sbarco. Pennant No.: A 5328.



ANTEO

I Ex-U.S. AVB Type

1963, Giorgio Ghiglione

ANTEO (ex-U.S.S. Alameda County, AVB 1, ex-LST 32)

Displacement: 1,625 tons light, 2,366 tons beaching (4,080 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.)×50×14 (max.) feet
 Guns: 7—40 mm. AA; 2—20 mm. AA.
 Machinery: G.M. diesels, 2 shafts, B.H.P.: 1,700=11.6 kts. (max.)
 Complement: 200

General

Originally a United States tank landing ship. Built by the Dravo Corporation, Neville Island, Pa. Laid down on 17 Feb. 1943. Launched on 22 May 1943. Completed on 12 July 1943. Reclassified from LST 32 to AVB 1 (Advance Aviation Base ship) on 28 Sep. 1957. Transferred from the United States Navy to the Italian Navy in Nov. 1962 for use as a transport ship. Pennant No.: A 5306.

TARANTOLA

Displacement: 512 tons
 Dimensions: 157½×22×6 feet
 Machinery: Tosi diesel, B.H.P.: 380=10.5 kts, Sea speed 9 kts.

TRAINING SHIPS (Navi Scuola)



GAZZELLA

1962, Italian Navy, Official

GAZZELLA (ex-B 3, ex-M 801)

Displacement: 605 tons standard (821 tons full load)
 Dimensions: 224×29½×7½ feet
 Machinery: Triple expansion, 2 shafts, 2,400=14 kts.
 Boilers: 2 Schulz-Marine
 Oil fuel: 142 tons

General

Ex-German coal burning minesweeper. Acquired on 20 July 1949, when she was classed as "Nave Ausiliaria" (Auxiliary Ship) but subsequently converted to burn oil fuel and classed as "Nave Pattuglia" (Patrol Ship). Reclassified as a minesweeper in 1954 (Pennant No. 5338). Again reclassified as a coastal escort vessel (Nave Costiera) on 1 June 1956 and as Corvetta in 1959; with F pennant number 541. Reclassified as a training ship in 1960, armament being removed, and used for the training of cadets of the Accademia Navale. Pennant No. A 5308. Sister ship Antilope (ex-B 1, ex-M 328) was removed from the effective list in 1958, and sister ship Dajno was reclassified as a surveying vessel in 1960 (see earlier page).



AMERIGO VESPUCCI

1963, courtesy Godfrey H. Walker, Esq.

AMERIGO VESPUCCI

Displacement: 3,543 tons standard (4,146 tons full load)
 Dimensions: 229½ (pp.), 270 (o.a. hull), 330 (o.a. bowsprit)×51×22 feet
 Guns: 4—3 inch, 50 cal.; 1—20 mm.
 Machinery: Two Fiat diesels with electric drive to 2 Marelli motors.
 Complement: 1 shaft, H.P.: 1,900=10.5 kts.
 400+150 midshipmen

General

Built at Castellammare. Launched on 22 March 1930. Sail area: 22,660 sq. ft. Hull, masts and yards are of steel. Loud speakers and echo-sounding gear are included in her equipment. Extensively refitted at La Spezia Naval Dockyard in 1964. NATO Pennant No.: A 5312.



PALINURO

1963, Captain Aldo Fraccaroli

PALINURO (ex-Commandant Louis Richard)

Displacement: 1,042 tons standard (1,450 tons full load)
 Measurement: 858 tons gross
 Dimensions: 204 (pp.), 226½ (o.a.)×32×18½ feet
 Machinery: Diesel, 1 shaft, B.H.P.: 375=7 kts.

General

Barquentine. Ex-French vessel, launched in 1920. Purchased in 1950. Rebuilt and recommissioned in the Italian Navy on 16 July 1955. NATO Pennant No. A 5311. The sail training ship Elba was disposed of in 1960. Sparviero is under construction.

CORSARO II

General

Special yacht for sail training and oceanic navigation. R.O.R.C. class. Built by Costaguta Yard, Voltri, in 1959-60; 41 tons, 68½×15½×9½ feet, 1 Mercedes-Benz diesel, 96 H.P. Sail area 2,117 sq. ft.

MOTOR TRANSPORTS (Mototrasporti)



MTC 1003 1965, Italian Navy, Official

13 Ex-German MFP Type

MTC 1001	MTC 1005	MTC 1008	MTC 1101	MTC 1103
MTC 1003	MTC 1006	MTC 1009	MTC 1102	MTC 1104
MTC 1004	MTC 1007	MTC 1010		

Displacement: 240 tons standard
Dimensions: 164 21½ x 5½ feet
Guns: 2 or 3—20 or 37 mm.
Machinery: 2 or 3 diesels. B.H.P.: 500=10 kts.

General
Moto-Trasporti Costieri, MTC 1001 to 1010 are Italian MZ (Motozattere) type. MTC 1101 to 1104 are ex-German built in Italy. NATO Pennant Nos.: A 5341 and A 5343 to A 5359, respectively. MTC 1002 was removed from the effective list in 1964.

20 Ex-U.S. LCM Type

MTM 9901	MTM 9905	MTM 9909	MTM 9913	MTM 9917
MTM 9902	MTM 9906	MTM 9910	MTM 9914	MTM 9918
MTM 9903	MTM 9907	MTM 9911	MTM 9915	MTM 9919
MTM 9904	MTM 9908	MTM 9912	MTM 9916	MTM 9920

Displacement: 20 tons standard
Dimensions: 49½ x 14½ x 4½ feet
Guns: 2—20 mm. AA.
Machinery: Diesels. Speed: 10 kts.

General
Rated as Moto-Trasporti Medi. Former United States landing craft of the LCM type.

24 Ex-U.S. LCPV Type

MTP 9701	MTP 9706	MTP 9711	MTP 9716	MTP 9721
MTP 9702	MTP 9707	MTP 9712	MTP 9717	MTP 9722
MTP 9703	MTP 9708	MTP 9713	MTP 9718	MTP 9723
MTP 9704	MTP 9709	MTP 9714	MTP 9719	MTP 9724
MTP 9705	MTP 9710	MTP 9715	MTP 9720	

Displacement: 8 tons standard
Dimensions: 36½ x 10½ x 3 feet
Guns: 2 M.G.
Machinery: Diesels. Speed: 10 kts.

General
Rated as Moto-Trasporti Piccoli. Former United States landing craft of the LCPV type. MTP 9726 of 10 tons displacement and similar characteristics is of Italian construction.

MTP 9725 was officially removed from the effective list in 1963.

LIGHTHOUSE TENDERS

BUFFOLUTO

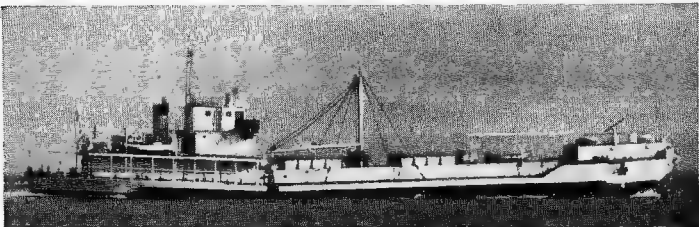
Displacement: 930 tons standard
Dimensions: 172½ (pp.), 184½ (o.a.) x 29½ x 11 feet
Machinery: 2 triple expansion. I.H.P.: 1,400=10 kts.
Boilers: 2 Thornycroft

General
Launched in 1924. Pennant No.: A 5327. Sister Panigaglia blew up in July 1947.

RAMPINO

Displacement: 350 tons standard (645 tons full load)
Dimensions: 158½ x 24½ x 13 feet
Machinery: Triple expansion=7 kts.

General
Buoy tender. Of netlayer type. Classed as Nave Ausiliarie. Pennant No. A 5309.



MFT 1302 Added 1959, Italian Navy, Official

3 Ex-British LCT (3) Type

MTF 1301	MTF 1302	MTF 1303
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Displacement: 296 tons light (700 tons full load)
Dimensions: 192 x 31 x 7 feet
Guns: 1—40 mm., 56 cal. AA., 2—20 mm., 70 cal. AA.
Machinery: Diesel. 1 shaft. Speed=8 kts.

General
Converted landing craft of the British LCT (3) type. Lighthouse motor transports (Moto-Trasporti Fari). NATO Pennant Nos.: A 5361, A 5362 and A 5363.

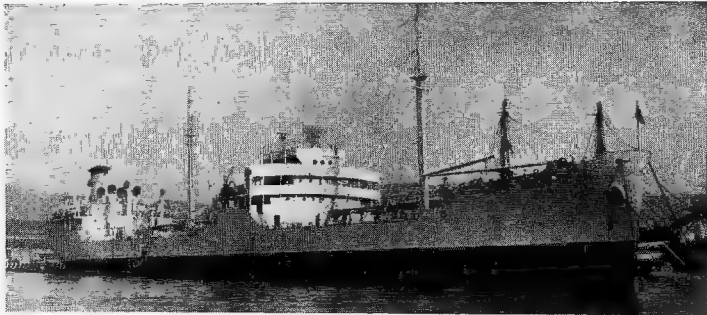
FAST REPLENISHMENT SHIP

I New Construction

Displacement: circa 10,000 tons
Dimensions: circa 500 feet
Machinery: circa 20 kts.

General
It is reported that a new type of fast replenishment ship is projected, but the exact specifications have not yet been finally decided and the above particulars formulated on operational requirements are very approximate, being based on a tentative design.

OILERS (Navi Cisterna per Nafta)

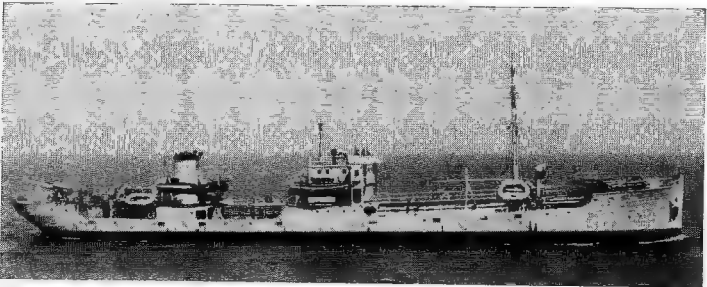


STEROPE 1960, Erminio Bagnasco

I Ex-U.S. T2 Type

STEROPE (ex-Enrico Insom)
Displacement: 5,350 tons light (21,800 tons full load)
Dimensions: 523½ (o.a.) x 68 x 30½ feet
Machinery: Turbo-electric. S.H.P.: 6,000=15 kts.
Boilers: 2 Babcock & Wilcox

General
Former United States built oiler of the T 2 type acquired by the Italian Navy in 1959 and refitted at La Spezia Navy Yard in April 1959. NATO Pennant No.: A 5368.



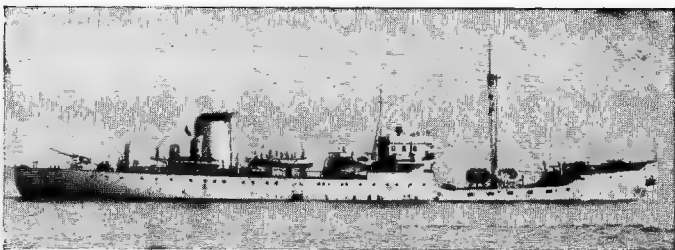
DALMAZIA Italian Navy, Official

DALMAZIA

Displacement: 1,466 tons light, 3,216 tons standard (5,000 tons full load)
Dimensions: 260 x 32½ x 15½ feet
Guns: 1—4.7 inch, 2—20 mm. AA.
Machinery: Triple expansion. 2 shafts. I.H.P.: 1,450=10 kts.
Boilers: 2 Thornycroft oil-fired
Cargo: 1,800 tons

General
Built by Quarnaro Yard, Fiume, launched in 1922. Formerly classified as a water carrier. Reclassified as a fleet oiler in 1958. NATO Pennant No.: A 5367.
Small Oiler
There is also ex-U.S.S. YO 247, a small oiler transferred from the United States to Italy under the Military Aid Programme.

WATER CARRIERS (Navi Cisterna per Acqua)



VOLTURNO (new radar mast) 1957, Italian Navy, Official

PO

VOLTURNO

Displacement: 1,556 tons light, 3,541 tons standard (6,000 tons full load)
Dimensions: 270½ x 38½ x 16½ feet
Guns: 1—4 inch, 35 cal., 2—40 mm., 2—20 mm. (Po)
1—4.7 inch, 45 cal., 2—40 mm., 2—20 mm. AA. (Vultorno)
Machinery: Triple expansion. I.H.P.: 1,700=11.5 kts.
Boilers: 2 oil-fired watertube
Oil fuel: 226 tons

General
Po was launched by Cant. Nav. Riuniti, Ancona, on 21 Dec. 1936. Vultorno was built by Cantieri del Tirreno, Riva, Trigoso, in 1936-37, and rebuilding was completed in 1951. Vultorno has a new radar mast (see photo). NATO Pennant Nos.: A 5365 and A5366, respectively. Cargo capacity: 2,200 tons.

5 Ex-U.S. YW Type

ADIGE (ex-YW 92)	ISONZO (ex-YW 77)	TICINO (ex-YW 79)
FLEGETONTE (ex-YW 95)		TANARO (ex-YW 99)

Displacement: 463 tons standard (1,470 tons full load)
Guns: 3—20 mm., 70 cal. AA.
Machinery: 2 diesels. H.P.: 315=8 kts.

General
Ex-U.S. Army. NATO Pennant Nos.: A 5369, A 5371, A 5372, A 5376 and A 5377, respectively. Water capacity: 850 tons.

Water Carriers—continued

SESIA	Displacement: 1,050 tons Dimensions: 213½×33×11½ feet Guns: 3—20 mm., 70 cal. AA. Machinery: Fiat diesels: 2 shafts. B.H.P.: 600=8 kts.	
<i>General</i> Built by Adriatico. Launched in 1933. Fitted for minelaying. NATO Pennant No.: A 5375.		
METAURO	Displacement: 592 tons Dimensions: 133½×26½×10½ feet Guns: 1—20 mm., 70 cal. AA. Machinery: Tosi diesels. B.H.P.: 400=8 kts.	
<i>General</i> Built by C.N. Quarnaro-Fiume. Launched in 1933. NATO Pennant No.: A 5373.		
ARNO	Displacement: 634 tons Dimensions: 138½×26×10 feet Guns: 1—20 mm., 70 cal. AA. Machinery: 1 Fiat diesel. B.H.P.: 350=8 kts.	
<i>General</i> Built by Odero-Terni-Orlando, La Spezia. Launched in 1929. NATO Pennant No.: A 5370.		
MINCIO	Displacement: 645 tons Dimensions: 138½×26½×10 feet Guns: 1—20 mm., 70 cal. AA. Machinery: Tosi diesels. B.H.P.: 350=8 kts.	
<i>General</i> Built in Venice. Launched in 1929. NATO Pennant No.: A 5374.		
TIMAVO	Displacement: 265 tons Machinery: 1 Tosi diesel. B.H.P.: 200=8 kts.	
<i>General</i> Built by C.O.M.I., Venezia, 1926. Sister ship <i>Vipacco</i> was removed from the effective list in 1961.		
FRIGIDO (ex-Fukuju Maru)	Displacement: 398 tons Dimensions: 116½×21½×10 feet Guns: 2 M.G. Machinery: Triple expansion. I.H.P.: 221=7 kts. Boiler: 1 cylindrical	
<i>General</i> Built by Osaka. Launched in 1912. Purchased in 1916.		
OFANTO	Displacement: 250 tons Dimensions: 105½×19½×7½ feet Machinery: 1 Triple expansion. I.H.P.: 165=6 kts. Boilers: 1	
<i>General</i> Built by S.E.B., Riva Trigoso, 1913-14.		
LENO	SIMETO	SPRUGOLA
<i>General</i> Small water carriers of 270, 167, 212, 126 and 110 tons displacement, respectively.	STURA	TRONTO

TUGS (Rimorchiatori)

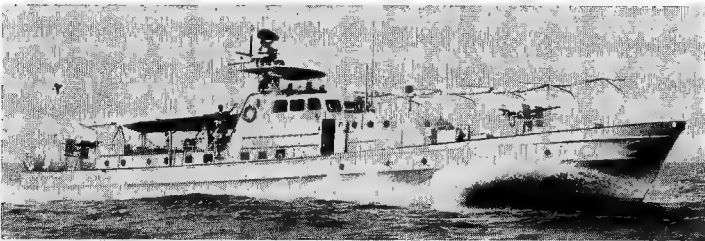
CIRCEO <i>General</i> Both completed in 1955. Minor tugs for local and general purposes.	TAVOLARA
AUSONIA <i>General</i> Displacement: 240 tons Both launched in 1948. Coastal tugs for general utility duties.	PANARIA
CICLOPE <i>General</i> Displacement: 1,200 tons Dimensions: 157½×32½×13 feet Machinery: Triple expansion. 1 shaft. I.H.P.: 1,000=8 kts. NATO Pennant Nos.: A 5319 and A 5320, respectively. <i>Titona</i> was launched in 1948. Sister ship <i>Nereo</i> was discarded in 1957	TITANO
MISENC <i>General</i> Displacement: 285 tons Former United States Navy harbour tugs.	MONTE CRISTO
GAGLIARDO <i>General</i> Displacement: 389 tons standard (506 tons full load) Machinery: I.H.P.: 1,000=8 kts. Both launched in 1939. NATO Pennant Nos.: A 5322 and A 5323, respectively.	ROBUSTO
PORTO EMPEDOCLE <i>General</i> Displacement: 330 tons standard Machinery: I.H.P.: 500=11 kts. Launched in 1934. Employed as a harbour tug. Armament of 1—3 inch gun removed.	
PORTO FOSSONE PORTO PISANO <i>General</i> All launched in 1936-37, except <i>Tino</i> , 1931. Principally employed as harbour tugs. Armament of 1—3 inch gun removed. <i>Porto Rosso</i> was deleted from the list in 1965.	PORTO RECANATI PORTO TORRES Displacement: 226 to 270 tons Dimensions: 88½×22×10 feet Machinery: I.H.P.: 600=9 kts.
	PORTO VECCHIO SALVORE TINO FORTE (ex-LT 159) TENACE (ex-LT 154) <i>General</i> Ex-U.S. Army. NATO Pennant Nos.: A 5318, A 5320, A 5321 and A 5324, respectively.

Tugs—continued

ATLANTE	Displacement: 355 tons Dimensions: 212½×23×9 feet Machinery: I.H.P.: 900=11 kts.	
<i>General</i> Launched in 1928. Sunk by collision in harbour at Genoa in Jan. 1948, but later salvaged. Armament of 1—3 inch gun removed. NATO Pennant No.: A 5317.		
LIPARI	Displacement: 254 tons (<i>Lipari</i>), 230 tons (<i>Ventimiglia</i>) Dimensions: 108½×23×7½ feet (<i>Lipari</i>) Machinery: H.P.: 500 (<i>Lipari</i>)=9 kts., 550 (<i>Ventimiglia</i>)=10 kts.	VENTIMIGLIA
<i>General</i> <i>Lipari</i> was built in 1917. There are also 55 harbour tugs, ferry tugs, lagoon tugs, numbered tugs and minor tugs.		

IVORY COAST

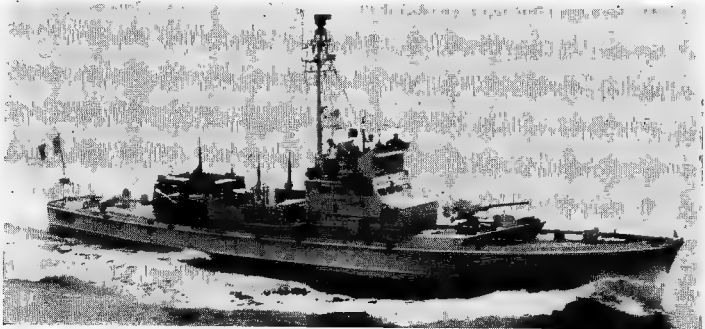
PATROL BOATS



PERSEVERANCE 1964, Ivory Coast Armed Forces, Official

I Ex-French VC Type

PERSEVERANCE (ex-VC 9, P 759)
Displacement: 75 tons standard (82 tons full load)
Dimensions: 104½×17×6 feet (officially revised figures)
Guns: 2—20 mm. AA.
Machinery: 2 Mercedes-Benz diesels. 2 shafts. B.H.P.: 2,700=28 kts.
Oil fuel: 10 tons
Radius: 1,100 miles at 16.5 kts; 800 miles at 21 kts.
Complement: 15
<i>General</i> Former French seaward defence motor launch. Built by the Constructions Mecaniques de Normandie, Cherbourg. Completed in 1958. Transferred from France to Ivory Coast in 1963.



PATIENCE 1964, Ivory Coast Armed Forces, Official

I Ex-U.S. SC Type

PATIENCE (ex-P 699, ex-CH 71, ex-U.S. SC-1337)
Displacement: 110 tons standard (138 tons full load)
Dimensions: 107½ (w.l.), 110½ (o.a.)×17×6½ feet
Guns: 1—40 mm. AA., 3—20 mm. AA.
Machinery: 2 Gen. Motors diesels. 2 shafts. B.H.P.: 1,000=15 kts.
Oil fuel: 15 tons
Radius: 2,000 miles at 10 kts., 1,150 miles at 15 kts.
Complement: 25
<i>General</i> Former United States wooden submarine chaser. Transferred from the U.S.A. to France on 29 Dec. 1943, and from France to Ivory Coast in 1961.

JAMAICA

Jamaica, which became independent within the Commonwealth, on 6 Aug. 1962, is forming its own Navy.

The Jamaican Government signed an agreement with the United States for the transfer of a small number of coastguard vessels for the new navy.

Great Britain agreed to lend officers to the new navy to train local personnel. The British Mission included a technical team to survey sites for the establishment of local naval bases.

PATROL BOATS

3 AVR Type

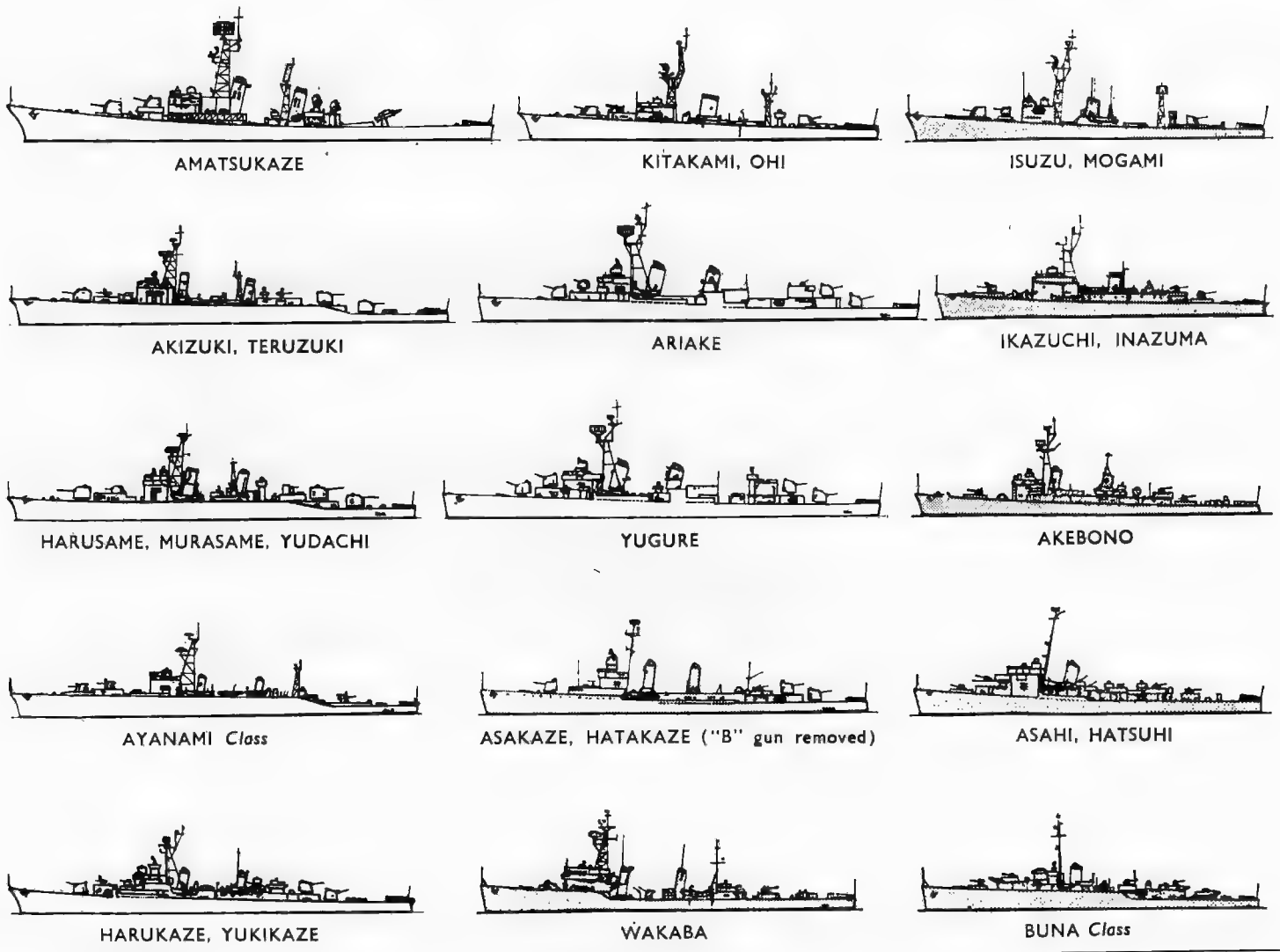
General
Three 63-ft. patrol boats of the AVR type were transferred to the Jamaican Defence Force by the U.S.A. in Feb. 1964.

JAPAN

Administration	New Construction Programmes	Five Year Defence Plan
Chief of the Maritime Staff, Defence Agency: Admiral Tomoharu Nishimura.	1965: 1 destroyer (3,000 tons new type) 1 destroyer (2,000 tons new type) 1 submarine (1,600 tons killer type) 6 auxiliaries and service craft	Under the second five-year defence programme (from 1962 to 1966) Japan is building 4 destroyers of 3,000 tons, 7 destroyers of 2,000 tons, 1 training ship of 3,500 tons, 5 submarines of 1,600 tons, 1 minelayer of 2,000 tons and 1 experimental hydroplane.
Commander-in-Chief, Self-Defence Fleet: Vice Admiral Susumu Oshiguro.	1964: 1 destroyer (3,000 tons new type) 1 destroyer (2,000 tons new type) 1 submarine (1,600 tons killer type) 1 submarine chaser (480 tons) 2 coastal minesweepers (340 tons)	Personnel 1965 39,943 (6,210 officers and 28,832 ratings; 4,901 civil) Official figures.
Chief, Administration, Maritime Staff Office: Rear Admiral Hayama Furutachi.	1963: 1 destroyer (3,000 tons new type) 1 destroyer (2,000 tons new type) 1 submarine (1,600 tons killer type) 1 submarine chaser (480 tons) 2 coastal minesweepers (340 tons)	Mercantile Marine Lloyd's Register of Shipping: 5,401 vessels of 10,813,228 tons gross
Defence Attaché in London: Major General Michio Utsunomiya.		
Defence Attaché in Washington: Captain Kiyohide Seki.		

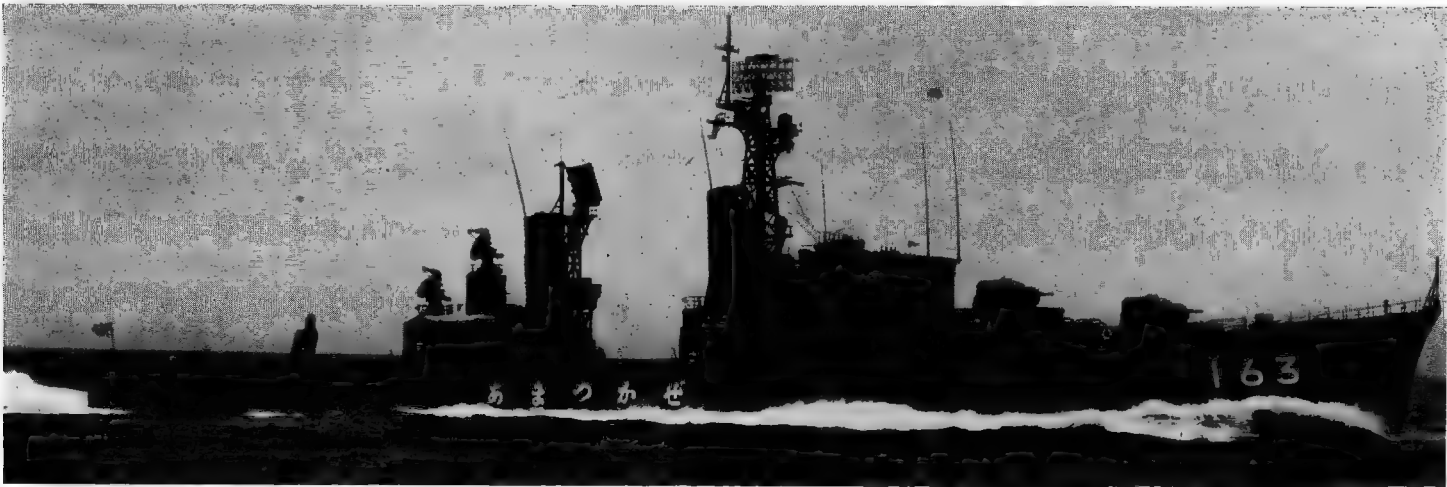
Silhouettes

Scale: 150 ft.=1 inch



DESTROYERS

4 New Construction Anti-Submarine Type Improved "Moon" Class			Guns: 2—5 inch, 54 cal. d.p. (single) A/S weapons: Octuple Asroc; Dash helicopter; 1 four-barrelled rocket launcher; 2 triple homing torpedo launchers Geared turbines, 2 shafts. S.H.P.: 60,000=32 kts.	new construction programme. She is to be equipped with an anti-submarine multiple rocket mounting and a drone anti-submarine helicopter with hangar. <i>Takatsuki</i> means "High Moon". A sister ship is to be built under the 1964 fiscal year new construction programme, and two more are included in the Five Year Defence Plan (1962 to 1966). These ships are variously listed as "DD" and "DDA" Type. The plans provide for two "macks" or combined masts and stacks.
TAKATSUKI	MOCHIZUKI			
Displacement:	3,000 tons (official figure)		General <i>Takatsuki</i> was provided for under the 1963 fiscal year	
Dimensions:	426½×44½×14½ feet (approx.)			
7 New Construction Diesel Type "Cloud" Class			Guns: 4—3 inch, 50 cal. AA. (two twin) A/S weapons: Octuple Asroc; 1 four-barrelled rocket launcher; 2 triple homing torpedo launchers Machinery: Mitsui B & W, diesels, 2 shafts. B.H.P.: 26,500=27 kts.	Laid down on 10 June 1964. <i>Yamagumo</i> was provided for under the 1962 fiscal year new construction programme. Built by Mitsui Shipbuilding & Engineering Co. Ltd., Tamano Works. Laid down 23 Mar. 1964. Launched on 27 Feb. 1965, <i>Makigumo</i> means "Rolling Cloud", and <i>Yamagumo</i> means "Mountain Cloud". A third ship of the type was authorised in the 1964 fiscal year new construction programme, and four more will be built under the Five Year Defence Plan (1962 to 1966). Various descriptions as "DE" and "DDK" Type. The design shows a lattice mast and two funnels.
MAKIGUMO	MURAKUMO	YAMAGUMO		
Displacement:	2,050 tons (official figure)		General <i>Makigumo</i> was ordered under the 1963 fiscal year new construction programme. Built by Uruga Dock Co.	
Dimensions:	374×38½×12½ feet			



AMATSUKAZE 1965, Mitsubishi Heavy Industries Limited

I New Construction
Guided Missile Armed Type

AMATSUKAZE

Pennant No.:	DD 163
Builders:	Mitsubishi, Nagasaki
Laid down:	29 Nov. 1962
Launched :	5 Oct. 1963
Completed:	15 Feb. 1965

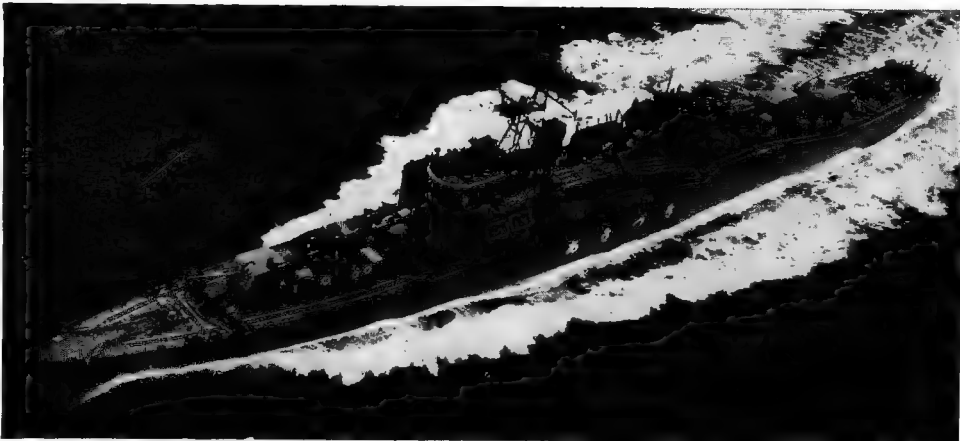
Displacement:	3,050 tons standard (4,000 tons full load)
Dimensions:	429½×44×13½ feet
Guided weapons:	1 single launcher for "Tartar" guided missiles
Guns:	4—3 inch, 50 cal. AA. (2 twin)
A/S weapons:	1 set of short torpedo dropping gear on each side, 2 hedgehogs
Machinery:	Gearred turbines, 2 shafts. S.H.P.: 60,000=33 kts.
Boilers:	2 Ishikawajima Foster Wheeler
Oil fuel:	900 tons
Complement:	290 officers and ratings

General
The largest naval vessel completed in Japan since the end of the Second World War, and the first to be armed with guided missiles. Distinguished by very clean lines, with flush deck and a marked absence of superstructure. Amatsukaze was provided for under the 1960 fiscal year new construction programme. She is equipped with "Tartar" surface-to-air guided missiles supplied from the U.S.A. Designed to carry and operate a helicopter. Amatsukaze means "Heaven Wind". Completed in little over two years, a creditable task for a prototype of the size and complexity.

2 "Moon" Class
(U.S. "Off-shore" Programme)

Name:	AKIZUKI	TERUZUKI
Pennant No.:	DD 161	DD 162
Builders:	Mitsubishi Zosen Co., Nagasaki	Shin Mitsubishi Jyuko Co., Kobe
Laid down:	31 July 1958	15 Aug. 1958
Launched:	26 June 1959	24 June 1959
Completion:	13 Feb. 1960	29 Feb. 1960

Displacement:	2,350 tons standard, 2,890 tons normal
Dimensions:	387½ (o.a.)×39½×13½ feet
Guns:	3—5 inch, 54 cal. d.p. (single); 4—3 inch, 50 cal. AA. (two twin)
Tubes:	4—21 inch (quadrupled)
A/S weapons:	2 hedgehogs, 2 Y-guns, 1 U.S. model Mk. 108 rocket launcher, 2 D.C.T.
Machinery:	2 sets Mitsubishi-Escher-Weiss (Akizuki), Westinghouse (Teruzuki) geared turbines, 2 shafts. S.H.P.: 45,000=32 kts.
Boilers:	2 Mitsubishi CE type
Complement:	330



AKIZUKI 1961, Official

General
Destroyers of a new design with a long forecastle hull. Received from the United States as part of the 1957 Military Aid Program, but built in Japanese shipyards under an off-shore procurement agree-

ment. U.S. Navy hull numbers DD 960 and DD 961. They were designed as flotilla leaders to serve as senior officers' ships and are equipped with two homing torpedo launchers, two radar systems and two sonar installations. "Akizuki" means Autumn Moon; "Teruzuki" means Shining Moon.

Anti-Submarine ("A" Type DDK)

7 "Wave" Class

Displacement:	1,700 tons standard (2,500 tons full load)
Dimensions:	357½ (w.l.)×35×11½ (max.)
Guns:	6—3 inch, 50 cal. AA. (3 twin)
Tubes:	4—21 inch (quadrupled)
A/S weapons:	2 homing torpedo launchers 2 U.S. model Mk. 15 Hedgehogs, 2 Y-guns
Machinery:	2 Mitsubishi-Escher-Weiss turbines, 2 shafts, S.H.P.: 35,000=32 kts.
Boilers:	2 Mitsubishi-Nagasaki CE type
Complement:	220

Construction
Built under the 1955 Programme (Ayanami, Isonami, Shikinami, Uranami); 1957 Programme (Takanami) and 1958 Programme (Onami, Makinami).

Anti-Submarine
The Hedgehog throwers are mounted on turntables before the bridge. Four torpedo loading racks are mounted in pairs abreast the after funnel. Droppers for anti-submarine homing torpedoes are mounted on the quarter deck.

Nomenclature
Ayanami means "Weave Wave," Isonami means "Shore Wave," Shikinami means "Spread Wave," Takanami means "High Wave," Uranami means "Small Bay Wave," Onami means "Billow Wave" and Makinami means "Roller Wave."



MAKINAMI 1963, Kohji Ishiwata

Name	Pen. No.	Builders	Laid down	Launched	Completed
AYANAMI	DD 103	Mitsubishi Zosen Co., Nagasaki	20 Nov. 1956	1 June 1957	12 Feb. 1958
ISONAMI	DD 104	Shin Mitsubishi Jyuko Co., Kobe	14 Dec. 1956	30 Sep. 1957	14 Mar. 1958
SHIKINAMI	DD 106	Mitsui Zosen Co., Tamano	24 Dec. 1956	25 Sep. 1957	15 Mar. 1958
TAKANAMI	DD 110	Mitsui Zosen Co., Tamano	8 Nov. 1958	8 Aug. 1959	30 Jan. 1960
URANAMI	DD 105	Kawasaki Jyuko Co., Tokyo	1 Feb. 1957	29 Aug. 1957	27 Feb. 1958
ONAMI	DD 111	Ishikawajima Jyuko Co., Tokyo	20 Mar. 1959	13 Feb. 1960	29 Aug. 1960
MAKINAMI	DD 112	Iino Jyuko Co., Maizuru	20 Mar. 1959	25 Apr. 1960	30 Oct. 1960

Photographs
Photographs of Uranami appear in the 1958-59 to 1960-61 editions, of Isonami and Murosome (Addenda) in the 1959-60 edition, of Onami (Addenda) in the 1960-61 edition, and of Takanami in the 1961-62 and 1962-63 editions.

Destroyers—continued

Anti-Aircraft ("A" Type DDA)
3 "Rain" Class

Name:	HARUSAME	MURASAME	YUDACHI
Pen. No.:	DD 109	DD 107	DD 108
Builders:	Uraga Dock Co., Yokosuka	Mitsubishi Zosen Co., Nagasaki	Ishikawajima Co., Tokyo
Laid down:	17 June 58	17 Dec. 57	16 Dec. 57
Launched:	18 June 59	31 July 58	29 July 58
Completed:	15 Dec. 59	28 Feb. 59	25 Mar. 59
Displacement:	1,800 tons standard (2,500 tons full load)		
Dimensions:	360×36×12½ feet		
Guns:	3—5 inch, 54 cal. d.p.; 4—3 inch, 50 cal. AA. (two twin)		
A/S weapons:	8 short anti-submarine torpedoes, 1 hedgehog, 1 Y-gun, 1 depth charge rack		
Machinery:	2 sets geared turbines. 2 shafts. S.H.P.: 30,000=30 kts.		
Boilers:	2		
Complement:	260		



MURASAME

1963, Official

General
Murasame and Yudachi were built under the 1956 Programme, Harusame under the 1957 Programme. "Harusame" means Spring Rain. "Murasame" means Shower. A photograph of Harusame appears in the 1960-61 to 1962-63 editions.

Engineering
Murasame has Mitsubishi-Escher-Weiss turbines and Mitsubishi CE type boilers by Mitsubishi, Nagasaki Co. Yudachi has Ishikawajima type turbines and Ishikawajima FW-D type boilers by Ishikawajima Heavy Industry Co.

2 "Wind" Class

Name:	HARUKAZE	YUKIKAZE
Pennant No.:	DD 101	DD 102
Builders:	Mitsubishi Zosen Co., Nagasaki	Shin-Mitsubishi Jyuko Co., Kobe
Laid down:	15 Dec. 1954	17 Nov. 1954
Launched:	20 Sep. 1955	20 Aug. 1955
Completed:	26 Apr. 1956	31 July 1956
Displacement:	1,700 tons standard (2,340 tons full load)	
Dimensions:	347½ (w.l.), 358½ (o.a.)×34½×12 feet	
Guns:	3—5 inch, 38 cal. d.p.; 8—40 mm. U.S. Bofors AA. (two quadruple)	
A/S weapons:	Tubes for short homing torpedoes, 2 hedgehogs, 4 K-guns, 1 depth charge rack	
Machinery:	Harukaze: 2 Mitsubishi-Escher-Weiss geared turbines. Yukikaze: 2 Westinghouse geared turbines	
Boilers:	2 shafts. S.H.P.: 30,000=30 kts. Harukaze: 2 Hitachi-Babcock Yukikaze: 2 Combustion Engineering	
Oil fuel:	557 tons	
Radius:	6,000 miles at 18 kts.	
Complement:	240	



HARUKAZE

1963, Kohji Ishiwata

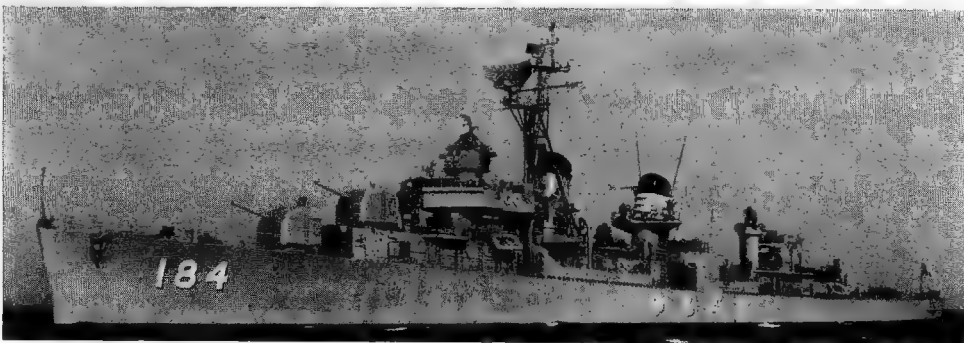
General
"A" Type DD High Speed Escort Vessels. Harukaze and Yukikaze were authorised by Congress under 1953 fiscal year programme. First destroyer hulled vessels built in Japan after the Second World War. Electric welding was extensively adopted in hull construction; development and usage of weldable high tension steel in main hull and light alloy in superstructure are also novel. Nearly all armament was supplied from the U.S.A.

under the MSA clause. Harukaze means "Spring Wind," Yukikaze means "Snow Wind." A photograph of Yukikaze appears in 1962-63 edition.

A/S Weapons
Armament was modified in Mar. 1959 when homing torpedo tubes were mounted and depth charge equipment correspondingly reduced.

(Ex-U.S. Later "Fletcher" Type)
2 "Twilight" Class

ARIAKE (ex-U.S.S. Heywood L. Edwards, DD 663)	
YUGURE (ex-U.S.S. Richard P. Leary, DD 664)	
Name:	Ariake Yugure
Pennant No.:	DD 183 DD 184
Builders:	Boston Boston
Launched:	6 Oct. 1943 6 Oct. 1943
Completed:	26 Jan. 1944 23 Feb. 1944
Displacement:	2,050 tons standard (3,040 tons full load)
Dimensions:	376½ (o.a.)×39½×18 (max.) feet
Guns:	Ariake: 3—5 inch, 38 cal.; 10—40 mm. AA. Yugure: 4—5 inch, 38 cal.; 10—40 mm. AA.
A/S weapons:	Ariake: Mk. 108 rocket launcher (Weapon A); 1 set short homing dropping gear on each side. D.C. rack Yugure: 2 hedgehogs
Machinery:	General Electric geared turbines. 2 shafts. S.H.P.: 60,000=35 kts.
Boilers:	4 Foster Wheeler
Complement:	300



YUGURE

1964, Ishikawajima-Harima Heavy Industries Co. Ltd.

General
Former United States destroyers of the Later "Fletcher" class DD. Transferred on loan from the U.S. Navy to the Japanese Maritime Self-Defence Force on 10 Mar. 1959 and towed to Japan for refit, during which No. 3 5 inch gun was removed. "Ariake" means Dawn Twilight. "Yugure" means Evening Dusk.

Conversion
Both ships completed conversion in Mar. 1962 with improved bridges, larger combat information centre, newer radar aerials and tripod masts. No. 2 5 inch gun is being removed from Ariake and replaced by Weapon A from the United States.

(Ex-U.S. "Gleaves-Livermore" Type)
2 "Breeze" Class

ASAKAZE (ex-U.S.S. Ellyson, DD 454, ex-DMS 19)	
HATAKAZE (ex-U.S.S. Macomb, DD 458, ex-DMS 23)	
Name:	Asakaze Hatakaze
Pennant No.:	DD 181 DD 182
Builders:	Federal S.B. & D.D. Co. Bath Iron Works Corpn.
Laid down:	2 Dec. 1940 3 Sep. 1940
Launched:	25 July 1941 22 Sep. 1941
Completed:	28 Nov. 1941 26 Jan. 1942
Displacement:	1,630 tons standard (2,775 tons full load)
Dimensions:	341 (w.l.), 348½ (o.a.)×36×10 (mean) 18 (max.) feet
Guns:	3—5 inch, 38 cal. d.p.; 8—40 mm. AA.; 4—20 mm. AA.
A/S weapons:	2 depth charge racks
Machinery:	Geared turbines. 2 shafts. S.H.P.: 50,000=36 kts. 30 kts. (sea)
Boilers:	4 Babcock & Wilcox
Complement:	270



HATAKAZE

1963, Kohji Ishiwata

General
Former United States destroyers of the "Gleaves-Livermore" class. DD, formerly rated as destroyer minesweepers, DMS. Taken over from the U.S.A. on 19

Oct. 1954. Names mean "Morning Breeze" and "Flag-fluttering Breeze," respectively. A photograph of Asakaze appears in the 1962-63 edition.

FRIGATES

Destroyer Escort Type (DE)
4 "River" Class

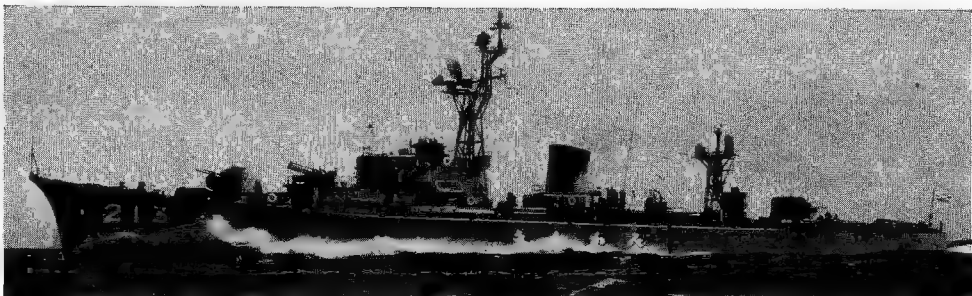
Displacement: 1,490 tons standard (1,700 tons full load)
Dimensions: 308½ (o.a.)×34½×11½ feet, see Class Variation
Guns: 4—3 inch, 50 cal. (two twin)
Tubes: 4—21 inch (quadrupled)
A/S weapons: 1 four-barrelled rocket launcher, 2 triple homing torpedo launchers, 1 D.C.T., 1 D.C. rack
Machinery: 4 diesels, 2 shafts. B.H.P.: 16,000=25 kts.
Complement: 180

Construction
Isuzu and Mogami were built under the 1959 fiscal year new construction programme and Kitakami and Ohi were built under the 1961 fiscal year new construction programme.

Class Variation
The second pair of this type, Kitakami and Ohi, have a number of improvements in armament and other equipment and are reported to be of slightly different dimensions.

Nomenclature
All new frigates of the destroyer escort (DE) type are named after rivers, like the old light cruisers. This naming system applied on 1 Oct. 1960.

Photographs
A photograph of Mogami appears in the 1961-62 edition, and of Isuzu in the 1962-63 and 1963-64 editions.



KITAKAMI		1964, Ishikawajima-Harima Heavy Industries Co. Ltd.			
Name	No.	Builders	Laid down	Launched	Completed
ISUZU	DE 211	Mitsui Zosen Co., Tamano	16 Apr. 1960	17 Jan. 1961	29 July 1961
KITAKAMI	DE 213	Ishikawajima-Harima Co., Tokyo	7 June 1962	21 June 1963	27 Feb. 1964
MOGAMI	DE 212	Mitsubishi Zosen Co., Nagasaki	4 Aug. 1960	7 Mar. 1961	28 Oct. 1961
OHI	DE 214	Maizuru (former Iino) Co., Maizuru	10 June 1962	15 June 1963	22 Jan. 1964



ISUZU

1962, Japanese Maritime Self-Defence Force, Official

Diesel "B" Type DE
2 "Thunder" Class

Name:	IKAZUCHI	INAZUMA
No.:	DE 202	DE 203
Builders:	Kawasaki Jyuko Co., Kobe	Mitsui Zosen Co., Tamano
Laid down:	18 Dec. 1954	25 Dec. 1954
Launched:	6 Sep. 1955	4 Aug. 1955
Completed:	29 May 1956	5 Mar. 1956

Displacement: 1,070 tons standard (1,300 tons full load)
Dimensions: 287 (w.l.)×28½×10½ feet
Guns: 2—3 inch, 50 cal., d.p.; 2—40 mm. AA.
A/S weapons: 1 hedgehog, 8 K-guns, 2 depth charge racks
Machinery: Diesels, 2 shafts, B.H.P.: 12,000=25 kts.
Radius: 5,500 miles at 15 kts.
Complement: 150

General
Diesel powered "B" type DE Escort Vessels. Authorised by Congress under 1953 fiscal year programme. Unlike the turbine boat, Akebono, see below, which has two funnels, these diesel boats have only one funnel. Ikazuchi means "Thunder," Inazuma means "Thunderbolt."

Gunnery
The original 2—3 inch guns and 4—40 mm. guns were removed in Mar. 1959 and replaced by 2—3 inch quick firing guns and 2—40 mm. guns.

Photographs
Another photograph of Ikazuchi appears in the 1958-59 to 1960-61 editions.



IKAZUCHI

1964, Kohji Ishiwata



INAZUMA

1961, Hajime Fukaya

Steam Turbine "B" Type DE
1 "Dawn" Class

AKEBONO

No.:	DE 201
Builders:	Ishikawajima Jyuko Co., Tokyo
Ordered:	20 Nov. 1954
Laid down:	10 Dec. 1954
Launched:	15 Oct. 1955
Completed:	20 Mar. 1956

Displacement: 1,060 tons standard (1,350 tons full load)
Dimensions: 301 (o.a.)×28½×11 (max.) feet
Guns: 2—3 inch, 50 cal. AA.
Machinery: Ishikawajima geared turbines, 2 shafts. S.H.P.: 18,000=28 kts.
Boilers: 2 Ishikawajima—Foster Wheeler type
Complement: 180



AKEBONO

1964, Kohji Ishiwata

General
The only steam turbine propelled DE. Rated as "B" type Escort Vessel. Built under the 1953 Programme. Akebono means "Dawn".

Gunnery
The original 2—3 inch guns and 4—40 mm. guns were removed in March 1959 when 2—3 inch quick firing guns were mounted.

Frigates—continued

Rated as Radar Experimental Ship
(Ex-Japanese Escort Destroyer)

WAKABA (ex-Nashi)

No.: DE 261
 Builders: Kawasaki, Kobe
 Laid down: 1 Sep. 1944
 Launched: 17 Jan. 1945
 Completed: 15 Mar. 1945

Displacement: 1,250 tons standard (1,560 tons full load)
 Dimensions: 322½ (pp.), 329½ (o.a.)×31½×10½ feet
 Guns: 2—3 inch, 50 cal. AA, aft Hedgehog, 4 K-guns, 2 D.C.T.
 Machinery: Turbines, 2 shafts. S.H.P.: 14,000 =26 kts. Sea speed, 24 kts.
 Boilers: 2 Kampon
 Oil fuel: 395 tons
 Radius: 4,680 miles at 16 kts.
 Complement: 170

General

This ship, the old wartime escort destroyer *Nashi*, was built under the War Programme of 1943 as one of the Modified "Matsu" type. She was sunk on 28 July 1945 off Hatajiri Point, Inland Sea, by carrier borne aircraft. She was officially scrapped on 15 Sep. 1945. But she was subsequently raised and repaired and purchased by the Maritime Self-Defence Force. She completed her first reconstruction at Kure Zosen on 12 May 1956, being re-



WAKABA

Added 1961

named and commissioned on 31 May. Designated "B" Type DE. Her new name *Wakaba* means "Young Leaf." She was intended to be used as a training ship, but she was converted into a radar picket escort vessel or aircraft direction ship. Her second reconstruction commenced at Uruga Dock Co. on 10 Sep. 1957 and was completed on 28 Mar. 1958. Her lattice foremast and

tripod mainmast were stepped in 1958. In 1961 she had a large radar aerial fitted aft.

Photographs

Another photograph of this ship after conversion to a radar picket escort vessel, a starboard quarter view, appears in the 1958-59 edition, and a port bow view appears in the 1959-60 and 1960-61 editions.

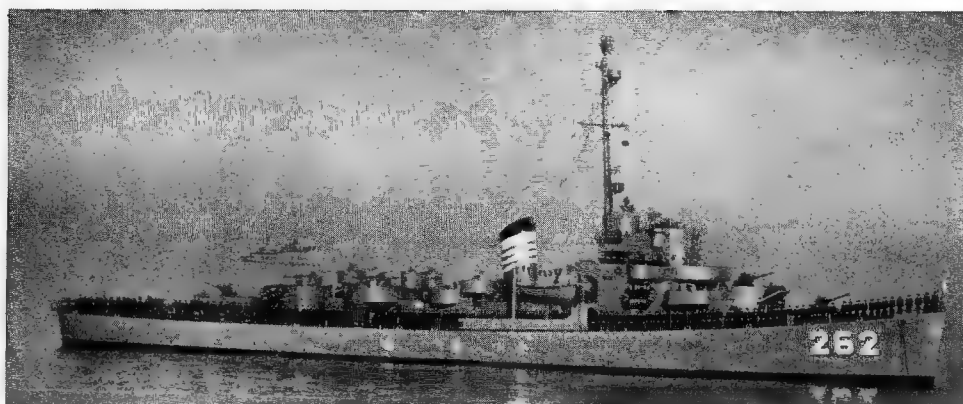
(Ex.U.S. "Bostwick" Type Destroyer
Escorts)
2 "Sun" ClassASAHI (ex-U.S.S. *Amick*, DE 168)HATSUHI (ex-U.S.S. *Atherton*, DE 169)

Name:	Asahi	Hatsuhi
No.:	DE 262	DE 263
Builders:	Federal Port Newark	Federal Port Newark
Laid down:	30 Nov. 1942	14 Jan. 1943
Launched:	27 May 1943	27 May 1943
Completed:	26 July 1943	29 Aug. 1943

Displacement: 1,250 tons standard light, 1,510 tons normal (1,900 tons full load)
 Dimensions: 306 (o.a.)×36½×10½ (mean), 12 (max.) feet
 Guns: 3—3 inch, 50 cal. d.p.; 6—40 mm. AA.; 8—20 mm. AA.
 A/S weapons: 8 K-guns, D.C.T.
 Machinery: General Motors diesels with electric drive. 2 shafts. B.H.P.: 6,000 =20 kts. sea speed
 Complement: 220

General

Former United States destroyer escorts of the "Bost-



ASAHI

1961, Hajime Fukaya

wick" class DE taken over from the U.S. Navy on 14 June 1955. *Asahi* means "Morning Sun"; *Hatsuhi* means "First Sun of the Year."

Photographs

A photograph of *Hatsuhi* appears in the 1956-57 to 1960-61 editions.

(Ex.U.S. "Tacoma" Type Patrol Frigates)
18 "Tree" Class

BUNA (ex-U.S.S. <i>Bayonne</i> , PF 21)	P F 294
KAEDE (ex-U.S.S. <i>Newport</i> , PF 27)	P F 293
KASHI (ex-U.S.S. <i>Pasco</i> , PF 6)	P F 283
KAYA (ex-U.S.S. <i>San Pedro</i> , PF 37)	P F 288
KEYAKI (ex-U.S.S. <i>Evansville</i> , PF 70)	P F 295
KIRI (ex-U.S.S. <i>Everett</i> , PF 8)	P F 291
KUSU (ex-U.S.S. <i>Ogden</i> , PF 39)	P F 281
MAKI (ex-U.S.S. <i>Charlottesville</i> , PF 25)	P F 298
MATSU (ex-U.S.S. <i>Bath</i> , PF 55)	P F 286
MOMI (ex-U.S.S. <i>Poughkeepsie</i> , PF 26)	P F 284
NARA (ex-U.S.S. <i>Machias</i> , PF 53)	P F 282
NIRE (ex-U.S.S. <i>Sandusky</i> , PF 54)	P F 287
SAKURA (ex-U.S.S. <i>Carson City</i> , PF 50)	P F 290
SHII (ex-U.S.S. <i>Long Beach</i> , PF 34)	P F 297
SUGI (ex-U.S.S. <i>Coronado</i> , PF 38)	P F 285
TOCHI (ex-U.S.S. <i>Albuquerque</i> , PF 7)	P F 296
TSUGE (ex-U.S.S. <i>Gloucester</i> , PF 22)	P F 292
UME (ex-U.S.S. <i>Allentown</i> , PF 52)	P F 289

Displacement: 1,450 tons standard (2,415 tons full load)
 Dimensions: 285½ (w.l.), 304 (o.a.)×37½×13½ (max.) feet
 Guns: 3—3 inch, 50 cal., d.p.; 2—40 mm. AA.; 9—20 mm. AA.
 A/S weapons: 1 hedgehog, 2 depth charge racks, 8 K-guns
 Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=18 kts.
 Boilers: 2, of 3-drum type, 240 lbs.
 Oil fuel: 645 tons
 Radius: 9,500 miles at 12 kts.
 Complement: 170

General

All launched in 1943. Named after trees. *Kaede* and *Keyaki* have a deckhouse added abaft the mainmast.

Photographs

Photographs of *Kiri*, *Nora*, *Nire* and *Sugi* appear in the 1953-54 to 1962-63 editions.

Transfer

Transferred on loan from the United States in 1953. All were technically returned to the U.S. on 28 Aug. 1962, but were transferred outright to the Japanese Government the same day and became Japanese ships.

Reclassification

Buna, on 1 Feb. 1965, and *Kashi*, *Moni*, *Tochi* and *Ume*, on 1 Apr. 1965, were reclassified from escort vessels to training ships (moored).



KAYA

1963, Eiichi Aoki



KEYAKI (with deckhouse abaft small mainmast)

1961, Hajime Fukaya

SUBMARINES

New Construction
I+5 "Ohshio" Class

ASASHIO	OHSHIO
Displacement:	1,600 tons standard
Dimensions:	288½×27×15½ feet
Tubes:	8—21 inch (6 bow, 2 stern)
Machinery:	2 sets Kawasaki MAN diesels, 2 electric motors, 2 shafts. Speed =14 kts. (surface), 16 kts. (submerged)
Complement:	80

General
Ohshio, SS 561, was built under the 1961 fiscal year new construction programme by Shin-Mitsubishi Heavy Industries Co., Kobe. Laid down on 29 June 1963. Launched on 30 Apr. 1964. Completed in Apr. 1965. A bigger design to obtain improved seaworthiness, a larger torpedo capacity and more comprehensive sonar and electronic devices. She is capable of deep diving, the first submarine of this propensity of all submarines built before or after the Second World War in Japanese yards. Ohshio means "Flood Tide" or "Big Tide". Cost \$5,600,000. Asashio ("Morning Tide") was laid down in Oct. 1964 (1963 programme), and four more are to be built under the Five Year Defence Plan (1962 to 1966).

4 "Hayashio" Class

Displacement:	750 tons standard (first two), 780 tons (last two), officially revised figures
Dimensions:	193½ (o.a.) first two, 200 (o.a.) last two, ×21½×13½ feet
Tubes:	3—21 inch
Machinery:	2 diesels, 2 shafts. B.H.P.: 1,350 11 kts. (surface), 2 electric motors H.P.: 1,700=14 kts. (submerged)
Complement:	40

General
Medium submarines of improved type, with more efficient sonar devices, giving them slightly increased displacement. Very handy and successful boats, with a large safety factor, complete air conditioning and good habitability.

Construction
Hayashio and Wakashio were built under the 1959 fiscal year new construction programme and Natsushio and Fuyushio under the 1961 programme.

Photographs
A photograph of Hayashio appears in the 1962-63 to 1964-65 editions, of Natsushio on proving trials at full power in the 1963-64 edition, and of Natsushio as completed in the 1964-65 edition.

Nomenclature
Fuyushio means "Winter Tide," Hayashio "Swift Tide," Natsushio "Summer Tide," and Wakashio "Young Tide."

Nuclear Power Study
The Director of the Japanese Defence Agency stated on 5 May 1955 that Japan was studying the possibility of building a nuclear powered submarine. In the meantime, conventional submarines would be ordered.

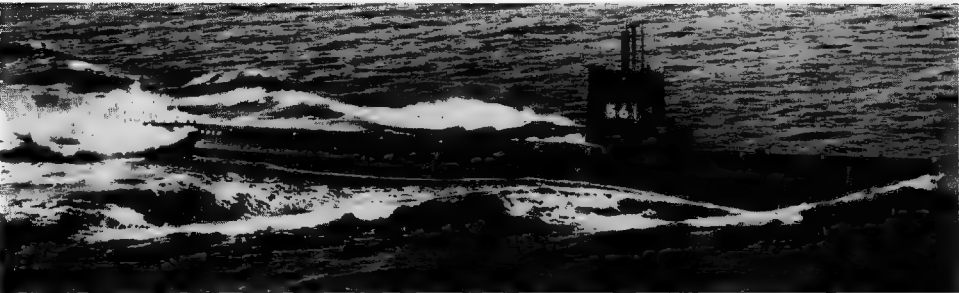
I "Oyashio" Class

OYASHIO	
Pennant No.:	SS 511
Builders:	Kawasaki Jyuko Co., Kobe
Laid down:	25 Dec. 1947
Launched:	25 May 1959
Completed:	30 June 1960
Displacement:	1,130 tons surface (1,420 tons submerged)
Dimensions:	258½×23×15½ feet
Tubes:	4—21 inch, 10 torpedoes
Machinery:	2 diesels, B.H.P.: 2,700=13 kts. (surface) 2 electric motors, S.H.P.: 5,960 =19 kts. (submerged)
Radius:	5,000 miles at 10 kts.
Complement:	65

General
Of a new type. Built under the 1956 Programme. The first submarine to be built in a Japanese shipyard since the end of the Second World War, Oyashio is the name of a tide stream in the Pacific off Honshu. Completed and delivered to the Japanese Maritime Self-Defence Force on 30 June 1960. She was first estimated to cost £2,718,000, but this figure has since been revised.

I Ex-U.S. "Gato" Class

KUROSHIO (ex-U.S.S. <i>Mingo</i> , SS 261)	
Pennant No.:	SS 501
Builders:	Electric Boat Co., Groton, Conn., U.S.A.
Laid down:	21 Mar. 1942
Launched:	3 Oct. 1942
Completed:	12 Feb. 1943
Displacement:	1,525 tons <i>standard</i> , 1,816 tons <i>surface</i> (2,425 tons <i>submerged</i>)
Dimensions:	311½×27×15 feet
Guns:	1—5 inch, 25 cal., d.p.
Tubes:	10—21 inch (6 bow, 4 stern)
Machinery:	2 General Motors diesels, B.H.P.: 6,500=21 kts. (<i>surface</i>); 2 electric motors, H.P.: 2,750= 10 kts. (<i>submerged</i>)
Complement:	80



OHSHIO

1965, courtesy Mitsubishi Heavy Industries Ltd.



WAKASHIO

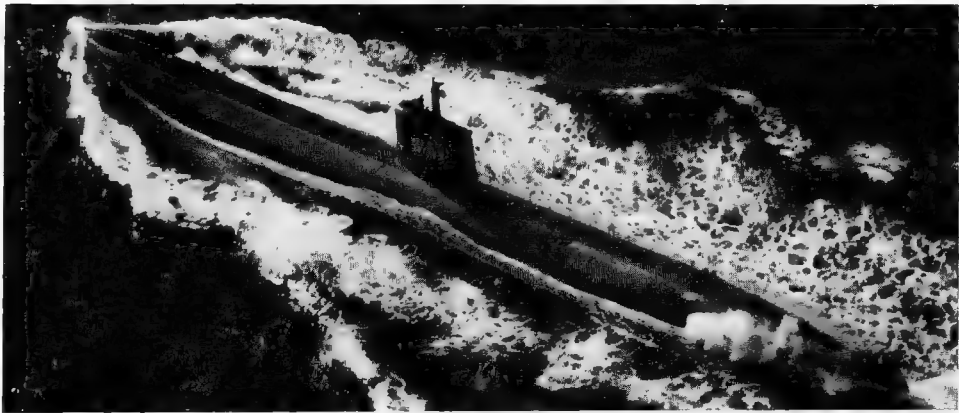
1964, Japanese Maritime Self-Defence Force, Official

Name	No.	Builders	Laid down	Launched	Completed
FUYUSHIO	SS 524	Kawasaki Jyuko Co., Kobe	6 Dec. 1961	14 Dec. 1962	17 Sep. 1963
HAYASHIO	SS 521	Shin Mitsubishi Jyuko Co., Kobe	6 June 1960	31 July 1961	30 June 1962
NATSUSHIO	SS 523	Shin Mitsubishi Jyuko Co., Kobe	5 Dec. 1961	18 Sep. 1962	29 June 1963
WAKASHIO	SS 522	Kawasaki Jyuko Co., Kobe	7 June 1960	28 Aug. 1961	17 Aug. 1962



FUYUSHIO

1965, Japanese Maritime Self-Defence Force, Official



OYASHIO

1961, Japanese Maritime Self-Defence Force, Official



KUROSHIO

1962, Official

General
Former United States submarine of the "Gato" class. Taken over from the U.S. Navy on 15 August 1955. Kuroshio means "Black Current."

FAST PATROL VESSELS



OHOTORI 1961, Japanese Maritime Self-Defence Force, Official

7 "Mizutori" Class Submarine Chasers (PC)

HATSUKARI KASASAGI	MIZUTORI OHOTORI	SHIRATORI	UMIDORI YAMADORI
Displacement:	420 to 450 tons standard		
Dimensions:	197×23½×7½ feet		
Guns:	2—40 mm. (twin)		
A/S weapons:	1 hedgehog, 1 D.C. rack, 2 homing torpedo launchers.		
Machinery:	2 MAN diesels, 2 shafts, B.H.P.: 3,800=20 kts.		
Oil fuel:	24.5 tons		
Radius:	2,000 miles at 12 kts.		
Complement:	70		

Construction

Mizutori and Yamadori built under 1958 programme, Ohotori, Kasasagi and Hatsukari 1959, Umidori (Sea Bird) 1961, Shiratori (White Bird) 1963.

No.	Name	Builders	Laid down	Launched	Completed
311	Mizutori	Kawasaki, Kobe	13 Mar. 1959	22 Sep. 1959	27 Feb. 1960
312	Yamadori	Fujinagata, Osaka	14 Mar. 1959	22 Oct. 1959	15 Mar. 1960
313	Ohotori	Kure Shipyard	16 Dec. 1959	27 May 1960	13 Oct. 1960
314	Kasasagi	Fujinagata, Osaka	18 Dec. 1959	31 May 1960	31 Oct. 1960
315	Hatsukari	Sasebo Shipyard	25 Jan. 1960	24 June 1960	15 Nov. 1960
316	Umidori	Sasebo Shipyard	15 Feb. 1962	15 Oct. 1962	30 Mar. 1963
317	Shiratori	Sasebo Shipyard	29 Feb. 1964	8 Oct. 1964	27 Feb. 1965



OHTAKA 1960, courtesy Kure Shipyard, Builders

5 "Umitaka" Class Submarine Chasers (PC)

KUMATAKA	OHTAKA	UMITAKA	WAKATAKA
Displacement:	440 to 480 tons standard		
Dimensions:	197×23½×8 feet		
Guns:	2—40 mm. (twin)		
A/S weapons:	1 hedgehog, 1 D.C. rack, 2 triple A/S torpedo launchers		
Machinery:	2 B & W, diesels, 2 shafts, B.H.P.: 4,000=20 kts.		
Oil fuel:	24 tons		
Radius:	2,000 miles at 12 kts.		
Complement:	70		

General Ohtaka and Umitaka were built under the 1957 programme. Same hull and armament as "Mizutori" class. Design improved from "Kamome" and "Kari" class, emphasising good sea-keeping qualities. Ohtaka means Great Hawk, Umitaka Sea Hawk, and Wakataka Young Hawk. Wakataka was built under the 1961 programme and Kumataka under the 1962. One more is being built under the 1964 programme.

No.	Name	Builders	Laid down	Launched	Completed
309	Umitaka	Kawasaki, Kobe	13 Mar. 1959	25 July 1959	30 Nov. 1959
310	Ohtaka	Kure Shipyard	18 Mar. 1959	3 Sep. 1959	14 Jan. 1960
319	Wakataka	Kure Shipyard	5 Mar. 1962	13 Nov. 1962	30 Mar. 1963
318	Kumataka	Fujinagata, Osaka	20 Mar. 1963	21 Oct. 1963	25 Mar. 1964



HAYABUSA 1957, Mitsubishi Shipbuilding & Engineering Co. Ltd., Builders

1 Gas Turbine Type Submarine Chaser (PC)

HAYABUSA 308	
Displacement:	380 tons <i>standard</i>
Dimensions:	190½×25½×7 feet
Guns:	2—40 mm. AA. (twin)
A/S weapons:	1 Hedgehog, 2 D.C. throwers, 2 D.C. racks
Machinery:	1 Gas turbine. H.P.: 5,000. 2 diesels. B.H.P.: 4,000. CODAG, Total H.P.: 9,000=26 kts.
Oil fuel:	22 tons
Radius:	2,000 miles
Complement:	75

General

Built under the 1954 fiscal year programme by Mitsubishi Shipbuilding & Engineering Co. Ltd., Nagasaki. Laid down on 23 May 1956. Launched on 20 Nov. 1956. Completed on 10 June 1957. The gas turbine was installed in Mar. 1962.

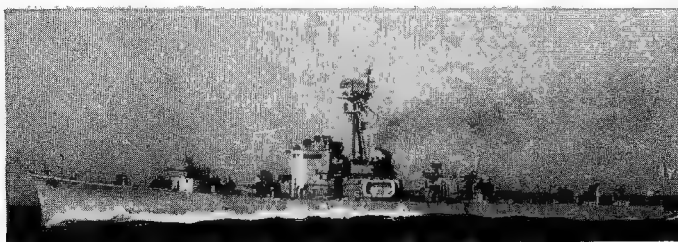
L

Fast Patrol Vessels—continued



MISAGO

Added 1964



KAMOME

1957, Japanese Maritime Self-Defence Force, Official

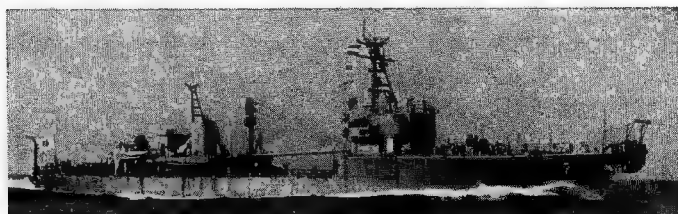
7 Diesel Type Submarine Chasers (PC)

KAMOME	KARI KIJU	MISAGO TAKA	TSUBAME WASHI
Displacement:	330 tons standard (Kari, Kiji, Taka, Washi, 310 tons)		
Dimensions:	173½ (o.a.)×21½×6½ feet		
Guns:	2—40 mm. (twin)		
A/S weapons:	1 hedgehog, 2 Y-guns, 2 D.C. racks		
Machinery:	2 diesels (Kari, Kiji, Taka and Washi, Kawasaki MAN; others Mitsui Burmeister & Wain), 2 shafts, B.H.P.: 4,000=20 kts.		
Oil fuel:	21.5 tons		
Radius:	2,000 miles at 12 kts.		
General Complement:	70		

Authorised under the 1954 programme. At the time they were an entirely new type of fast patrol vessels or submarine chasers, reminiscent of the United States PC type but modified and improved in many ways. Kamome means "Seagull".

No.	Name	Builders	Laid down	Launched	Completed
305	Kamome	Uraga	27 Jan. 1956	3 Sep. 1956	14 Jan. 1957
301	Kari	Fujinagata, Osaka	18 Jan. 1956	26 Sep. 1956	8 Feb. 1957
302	Kiji	Iino, Maizuru	14 Dec. 1955	11 Sep. 1956	29 Jan. 1957
307	Misago	Uraga	27 Jan. 1956	1 Nov. 1956	11 Feb. 1957
303	Taka	Fujinagata, Osaka	18 Jan. 1956	17 Nov. 1956	11 Mar. 1957
306	Tsubame	Kure Shipyard	15 Mar. 1956	10 Oct. 1956	31 Jan. 1957
104	Washi	Iino, Maizuru	14 Dec. 1955	12 Nov. 1956	20 Mar. 1957

MINELAYERS



TSUGARU

1956, Japanese Maritime Self-Defence Force, Official

TSUGARU 481 Minelayer and Cable Layer (ARC)

Displacement:	950 tons standard
Dimensions:	216½×34½×11 feet
Guns:	1—3 inch. 50 cal., d.p.; 2—20 mm. AA.; 4 K-guns
Mines:	4 mine launchers, capacity of 40 mines
Machinery:	Diesel, 2 shafts, B.H.P.: 3,200=16 kts.
Complement:	100

Construction

Dual purpose cable layer and coastal minelayer. Built under the 1953 programme by Yokohama Shipyard & Engine Works, Mitsubishi Nippon-Heavy Industries Ltd. Laid down on 18 Dec. 1954. Launched on 19 July 1955. Completed on 15 Dec. 1955.



ERIMO

1956, Japanese Maritime Self-Defence Force, Official

ERIMO 491 Minelayer and Minesweeper (AMC)

Displacement:	630 tons standard
Dimensions:	210×26×8 feet
Guns:	2—40 mm. AA.; 2—20 mm. AA.
A/S weapons:	1 hedgehog, 2 K-guns, 2 D.C. racks
Machinery:	Diesel, 2 shafts, B.H.P.: 2,500=18 kts.
Complement:	80

Construction

Multi-purpose minelayer, ocean minesweeper (non-magnetic) and submarine chaser. Authorised under 1953 fiscal year programme. Built by Uraga Dock Co. Laid down on 10 Dec. 1954. Launched on 12 July 1955. Completed on 28 Dec. 1955.

COASTAL MINESWEEPERS



SHISAKA

1961

19 "Kasado" Class

CHIBURI HABUSHI HARIO	HIRADO HOTAKA KANAWA KARATO	KASADO KOSHIKI KOHZU KUDAKO	MIKURA MUTSURE OHTSU SAKITO	SHIKINE SHISAKA TATARA TSUKIMI
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Displacement: 340 tons
 Dimensions: 151×27½×7½ feet
 Guns: 1—20 mm. AA.
 Machinery: 2 diesels, 2 shafts. B.H.P. 1,200=14 kts.

General

Anti-magnetic type minesweepers. Hull is of wooden construction with form for speed. Otherwise built of non-magnetic materials. Kasado was built by Hitachi, Kanawaga Works, Shishaka by Tsurumi, Japan Steel Works, Sakito by Nippon Steel Tube Co. (Tsurumi Works), Habushi and Kanawa by Hitachi Shipbuilding Co. (Kanawaga Works of Kawasaki). Kasado and Shisaka were built under the 1955 programme, Habushi, Kanawa and Sakito 1957, four 1958, two 1959, two 1960, two 1961, two 1962, two 1963.

No.	Name	Laid down	Launched	Completed
MSC 604	Kasado	9 July 1956	19 Mar. 1958	26 June 1958
MSC 605	Shisaka	20 July 1956	20 Mar. 1958	16 Aug. 1958
MSC 606	Kanawa	25 Aug. 1958	22 Apr. 1959	24 July 1959
MSC 607	Sakito	16 Aug. 1958	22 Apr. 1959	25 Aug. 1959
MSC 608	Habushi	25 Aug. 1958	19 June 1959	22 Sep. 1959
MSC 609	Kohzu	24 Mar. 1959	12 Nov. 1959	26 Feb. 1960
MSC 610	Tatara	30 Mar. 1959	14 Jan. 1960	26 Mar. 1960
MSC 611	Tsukumi	24 Mar. 1959	12 Jan. 1960	27 Apr. 1960
MSC 612	Mikura	30 Mar. 1959	14 Mar. 1960	27 May 1960
MSC 613	Shikine	12 Jan. 1960	22 July 1960	15 Nov. 1960
MSC 614	Hirado	14 Mar. 1960	3 Oct. 1960	17 Dec. 1960
MSC 615	Koshiki	20 Mar. 1961	9 Nov. 1961	29 Jan. 1962
MSC 616	Hotaka	22 Mar. 1961	23 Oct. 1961	24 Feb. 1962
MSC 617	Karato	15 Mar. 1962	11 Dec. 1962	23 Mar. 1963
MSC 618	Hario	19 Mar. 1962	10 Dec. 1962	27 Mar. 1963
MSC 619	Mutsure	28 Mar. 1963	16 Dec. 1963	24 Mar. 1964
MSC 620	Chiburi	27 Mar. 1963	29 Nov. 1963	25 Mar. 1964
MSC 621	Ohtsu	25 Mar. 1964	5 Nov. 1964	24 Feb. 1965
MSC 622	Kudako			



YASHIRO

1957. Nippon Steel Tube Co. Ltd., Builders

YASHIRO

1 "Yashiro" Class

Displacement: 230 tons standard (255 tons full load)
 Dimensions: 118 (pp.)×22½×6½ feet
 Guns: 1—20 mm. AA.
 Machinery: Diesel, 2 shafts. B.H.P. 1,200=13 kts
 Complement: 30

General

Built under the 1953 Programme by the Nippon Kokan Co., Tsurumi. Laid down on 22 June 1955, launched on 26 Mar. 1956 and completed on 10 July 1956, No. MSC 603. She is of a different type from Atada and Itsuki (see below).



ITSUKI

1960, Nippon Steel Tube Co. Ltd., Builders

ATADA

2 "Atada" Class

Displacement: 240 tons standard (260 tons full load)
 Dimensions: 118 (pp.), 123½ (o.a.)×21×6½ feet
 Guns: 1—20 mm. AA.
 Machinery: Diesel, 2 shafts. B.H.P. 1,200=13 kts.
 Oil fuel: 20 tons
 Radius: 2,000 miles at 10 kts.
 Complement: 30

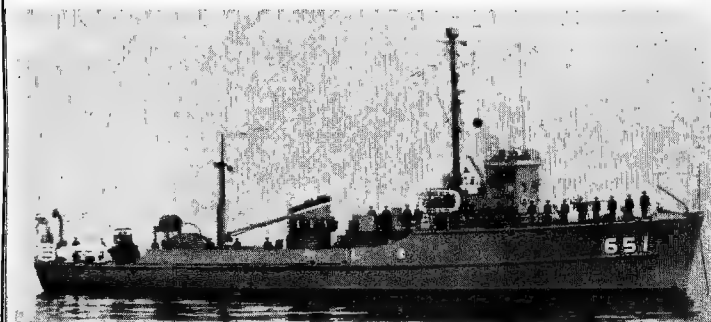
ITSUKI

General

Of wood and light metal construction. Authorised under the 1953 fiscal year programme. Built by the Hitachi Zosen Co. Named after small islands. A photograph of Atada appears in the 1957-58 to 1959-60 editions.

No.	Name	Laid down	Launched	Completed
MSC 601	Atada	20 June 1955	12 Mar. 1956	30 Apr. 1956
MSC 602	Itsuki	22 June 1955	12 Mar. 1956	20 June 1956

Coastal Minesweepers—continued



YASHIMA

1961, Hajime Fukaya

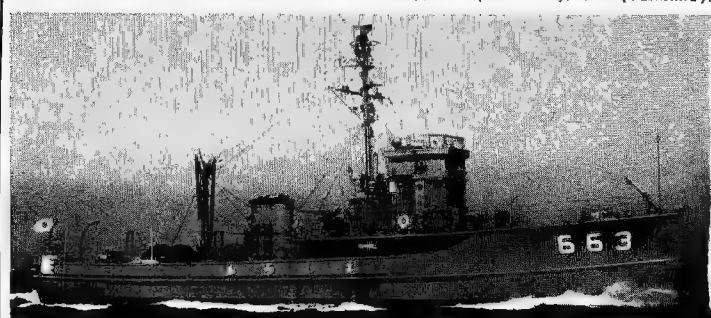
4 "Yashima" Class

HASHIMA (ex-U.S.S. AMS 95)	TSUSHIMA (ex-U.S.S. MSC (ex-AMS 255)
TOSHIMA (ex-U.S.S. MSC 258)	YASHIMA (ex-U.S.S. AMS 144)

Displacement: 335 tons standard (375 tons full load)
 Dimensions: 138 (pp.), 144 (o.a.)×26½×8½ feet
 Machinery: 2 General Motors diesels. B.H.P.: 880=13 kts.
 Complement: 39

General

Of wooden construction. Former American AMS's (Auxiliary Minesweepers). Yashima and Hashima were transferred from the U.S.A. on 16 Dec. 1954 and 3 June 1955, respectively. Tsushima was transferred from the U.S.A. under the Mutual Defence Assistance Programme and commissioned in the Japanese Navy on 18 July 1956 at San Francisco. Tashima was transferred under MDAP on 1 Feb. 1957, Nos. MSC 651 (Yashima), 652 (Hashima), 653 (Tsushima), 654 (Tashima).



MOROSHIMA

1961

9 "Ujishima" Class

ETAJIMA (ex-U.S.S. Firecrest, AMS 10)	OGISHIMA (ex-U.S.S. Pelican, AMS 32)
MOROSHIMA (ex-U.S.S. Hummer, MSC(o) 20)	UJISHIMA (ex-U.S.S. Condor, AMS 5)
NINOSHIMA (ex-U.S.S. Lark, MSC(o) 23)	YAKUSHIMA (ex-U.S.S. Osprey, AMS 28)
NUWAJIMA (ex-U.S.S. Heron, AMS 18)	YUGESHIMA (ex-U.S.S. Swallow, AMS 36)
	YURISHIMA (ex-U.S.S. Chatterer, AMS 40)

Displacement: 310 tons standard (350 tons full load)
 Dimensions: 136×24½×8 (max.) feet
 Guns: 1—40 mm. AA.; 2—20 mm. AA. (Moroshima and Ninoshima 2—20 mm. AA.)
 Machinery: 2 General Motors diesels. B.H.P.: 1,000=12 kts.
 Complement: 30

General

Former U.S. "Albatross" class coastal minesweepers of wooden construction, formerly known as auxiliary motor minesweepers (AMS) but reclassified as Minesweepers, Coastal (old) or MSC(o) in Feb. 1955. Moroshima and Ninoshima were transferred from the United States on loan to Japan under MDAP on 16 Mar. 1959, the remainder in 1955. All named after small islands around the Japanese homeland. Pennant Nos. 656, 663, 662, 657, 659, 655, 658, 660 and 661, respectively.

INSHORE MINESWEEPERS

3 "Chiyojura" Class

HATSUTAKA (ex-MS 03, ex-No. 222)	HIYODORI (ex-MS 84, ex-No. 203)
HAYATORI (ex-MS 15, ex-No. 214)	

Displacement: 130 tons
 Dimensions: 95½ (o.a.)×18½×6½ feet
 Machinery: 1 diesel. B.H.P.: 400=11 kts.
 Complement: 20

General

Of wooden construction. Ex-Auxiliary Sub-Chasers built in 1943-45. Named after birds. Nos. MSI 696 (Hatsutaka), 699 (Hayatori), 700 (Hiyodori).

Of this class Furutaka, Hakuo, Hayataka, Kiji, Miyakodiro, Nishikidori, Otaka, Otori, Shirasagi, Kakataka, Yamabato and Yuhibar were disposed of in 1959. Chiyojura, Iwatsubame, Umitsubame, Yoshikiri and Yukair in 1961, and Kamozuru, Shiratori and Tomozuru in 1963.

Of the ten inshore minesweepers of the "Ukishima" class Awashima, Himeshima, Kamoshima, Otoshima and *Ukishima were stricken in 1962 and *Kurushima, **Matsushima, Oshima, **Takushima, and *Tsurushima in 1963. *Relegated to minesweeping boats (service craft), **Relegated to service craft (miscellaneous boats).

YUCHIDORI (ex-MS 62)

Displacement: 300 tons
 Dimensions: 141½×20×10½ feet
 Machinery: Diesel, 2 shafts. B.H.P.: 800=13 kts.
 Complement: 38

General

Ex-Aircraft Rescue Boat used as a "guinea pig" in minesweeping. Originally rated as a small minesweeper (G.P.). Reclassified as a minesweeping boat (ASM) on 1 Apr. 1961, No. 71.

OKICHIDORI (ex-MS 68)

Displacement: 180 tons
 Dimensions: 125×18×9½ feet
 Machinery: 2 diesels. B.H.P.: 800=14 kts.
 Complement: 27

General

Former Naval Aircraft Rescue Boat. Of steel construction. Pennant No. ASM 72. The auxiliary minesweeping tender Soel (ex-Soel Maru, MS 32), ex-TM 2, tanker used as a "guinea pig" in minesweeping, was stricken on 31 Mar. 1963.

MOTOR TORPEDO BOATS (Gyoraitai)



PT 10 1964, Mitsubishi Shipbuilding & Engineering Co. Ltd.
No. 10
Displacement: 90 tons standard (120 tons full load)
Dimensions: 105×27½×3½ feet
Guns: 2—40 mm. AA. (1 forward, 1 aft)
Tubes: 4—21 inch (single, amidships)
Machinery: 3 Napier Deltic diesels. B.H.P.: 9,400=40 kts.
Complement: 26
General
1960 programme. Built by Mitsubishi, Shimonoseki. Laid down on 30 Jan. 1961. Launched on 28 July 1961. Completed on 25 May 1962. Light metal hull.



PT 9 1958, courtesy Saunders-Roe (Anglesey) Ltd., Builders
PT 9 Displacement: 55 tons (officially revised figure)
Dimensions: 71½×19½×6 feet
Tubes: 2—21 inch
Machinery: 2 Napier Deltic diesels. B.H.P.: 5,000=40 kts.
Complement: 14
General
Basically similar to the British "Dark" class MTBs. Built by Saunders-Roe (Anglesey) Ltd., Beaumaris. Delivered to Yokosuka Naval Base on 29 July 1957. Accepted into service on 2 Sep. 1957. Has mounting for 1—40 mm. AA. (gun not fitted).



MTB No. 7 1957, Mitsubishi Shipbuilding & Engineering Co. Ltd.
No. 7 Displacement: 100 tons
Dimensions: 112×24½×4 feet
Guns: 2—40 mm. AA.
Tubes: 4—21 inch
Machinery: 3 Mitsubishi diesels. 3 shafts. B.H.P.: 6,000=33 kts.
Complement: 30
General
Authorised in the 1954 fiscal year. Built by Mitsubishi Zosen Co., Shimonoseki Works. Both laid down on 23 Aug. 1956, launched on 2 Feb. and 20 July 1957, respectively, and completed on 19 Dec. 1957 and 10 Jan. 1958. Light metal hulls.



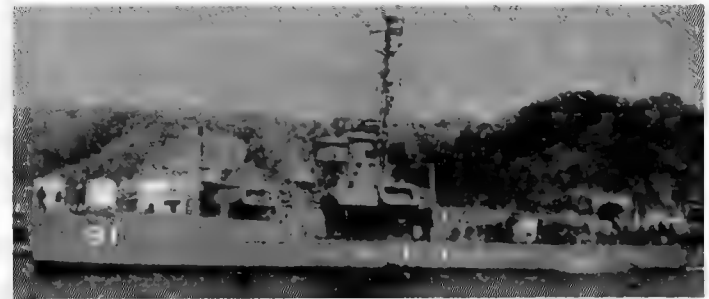
MTB No. 1 1957, Hitachi Shipbuilding Co., Builders
No. 1 Displacement: 75 tons (Nos. 3 and 4 70 tons)
Dimensions: 82×20×6 feet
Guns: 1—40 mm. AA.
Tubes: 2—21 inch torpedo launchers
Machinery: 2 diesel engines. B.H.P.: 4,000=31 kts.
Complement: 18
General
Authorised under the 1953 fiscal year programme. Nos. 1 and 2 have wooden hulls, Nos. 5 and 6 have steel hulls, and Nos. 3 and 4 have light metal hulls. Builders: Azuma Zosen Co. (Nos. 5 and 6), Hitachi Zosen Co. (Nos. 1 and 2), and Mitsubishi Zosen Co. (Nos. 3 and 4). Numbers 801 to 809 were assigned on 1 Sep. 1957.

SUBMARINE RESCUE VESSELS (ASR)



CHIHAHA 1961, Japanese Maritime Self-Defence Force, Official
CHIHAHA ASR 401
Displacement: 1,340 tons standard
Dimensions: 239½×39½×12½ feet
Machinery: Diesels. B.H.P.: 2,700=15 kts.
Complement: 90
General
Authorised under the 1959 fiscal year programme. The first vessel of her kind to be built in Japan. Laid down on 15 Mar. 1960. Launched by Mitsubishi Nippon Heavy Industries Co., Yokohama on 4 Oct. 1960. Completed on 15 Mar. 1961. Has rescue chamber recompression chamber, and four-point mooring equipment.

DRONE TARGET CARRIER



HAMAGIKU 1963, Official
Ex-U.S. LSSL Type
HAMAGIKU (ex-415, ex-U.S.S. LSSL 87)
Displacement: 300 tons standard
Dimensions: 158½ (o.a.)×23½×5½ feet
Guns: 2—40 mm. AA.
Machinery: Diesels. 2 shafts. B.H.P.: 1,800=12 kts.
Complement: 48
General
Former American LSSL. Sole survivor in the Japanese M.S.D.F. of the 53 Landing Ships Support, Large, transferred from the U.S.A. in 1953 and 1956 and employed as patrol vessels or support gunboats. Refitted as Drone Target Carrier in 1958. 22 patrol vessels, ex-LSSLs, sister ships of Hamagiku, were relegated to service craft and used for miscellaneous duties in 1960, including YAS 18 and YAS 19, see names of these (and the 27 units of this "Flower" class returned to the U.S.A. in 1958 and 1959) in the 1960-61 edition.

MINESWEEPING BOATS (Sokaitei)



MB 5 1963, Official
No. 1 Displacement: 40 tons
No. 2 Dimensions: 57½ (w.l.), 62½ (o.a.)×16×4 feet
No. 3 Machinery: Diesels. 2 shafts. B.H.P.: 320=10 kts.
No. 4 Complement: 10
No. 5
No. 6
General
Three authorised in 1954 and one in 1955. Nos. 1, 2 and 3 were launched in Jan. and Feb. 1957 and completed in Mar. and Apr. 1957. Nos. 1 and 2 were built by Hitachi, Kanagawa; and the others by Nihon Kohan, Tsurumi. (Nippon Steel Tube Co., Tsurumi Works). Named Sokaitei Nos. 1 to 6 and numbered MSB 701 to 706. No. 4 was launched in Apr. 1957 and completed in June 1957. Nos. 5 and 6 were laid down in Aug. 1958 and completed in Feb.-Mar. 1959.

PATROL BOATS (Shokai)

SHOKAI 1, 2, 3, 4, 5, 6, 7 Displacement: 18 tons
SHOKAI 11, 12, 13, 14, 15, 16, 17, 18 Dimensions: 45½×13½×3½ feet
Machinery: 2 diesels. B.H.P.: 450=16 kts.
General
These vessels were transferred to Japan under the MAP programme in 1958.

TANK LANDING SHIPS



OOSUMI

1962, Japanese Maritime Self-Defence Force, Official

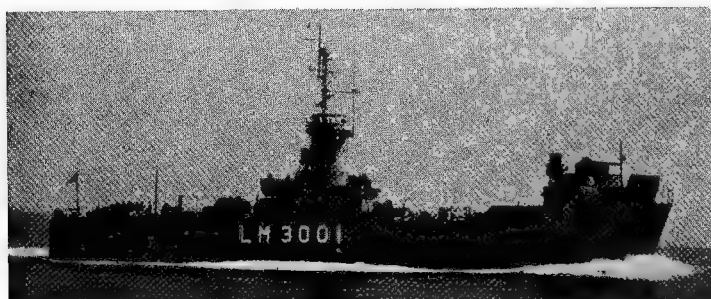
3 Ex-U.S. LST Type

OOSUMI 4001	SHIMOKITA 4002	SHIRETOKO 4003
Displacement:	1,650 tons standard (4,080 tons full load)	
Dimensions:	316 (w.l.), 348 (o.a.) \times 50 \times 14 feet	
Guns:	7—40 mm. AA., 2—20 mm. AA.	
Machinery:	General Motors diesels, 2 shafts, B.H.P.: 1,700=11 kts.	
Complement:	70	

General

Former United States tank landing ships Daggett County, LST 689, Hillsdale County, LST 835, and Nansemond County, LST 1064, built by Jeffersonville B. & M. Co., Jeffersonville, Ind.; American Bridge Co., Ambridge, Pa.; and Bethlehem Steel Co., Hingham, Mass., respectively. All built in 1944-45. Transferred from the U.S.A. under the Military Aid Program and commissioned in the Japanese Maritime Self-Defence Force on 1 Apr. 1961. Named after homeland peninsulars.

MEDIUM LANDING SHIPS (Yorikutei)



LSM 3001

1964, Japanese Maritime Self-Defence Force, Official

1 Ex-U.S. LSM Type

LSM 3001 (ex-French LSM 9013, ex-U.S.S. LSM 125)
Displacement:
Dimensions:
Guns:
Machinery:
Complement:

General

LSM 3001 was transferred from the United States Navy to the French Navy in 1954 for use in Indo-China. She was returned by the French in 1957 to the U.S. Navy, and then transferred to the Japanese in 1958. Named Yorikutei No. 3001. A photograph appears in the 1958-59 to 1960-61 editions.

LANDING CRAFT

6 Ex-U.S. LCU Type

LCU 2001	LCU 2002	LCU 2003	LCU 2004	LCU 2005	LCU 2006
Displacement:		187 tons			

General

Former United States LCU 1602, 1603, 1604, 1605, 1606 and 1607 transferred under MAP.

42 Ex-U.S. LCM Type

LCM 1001—1042
Displacement:

General

55 landing craft comprising 6 LCUs of 187 tons, 29 LCMs of 22 tons and 20 LCPVs of 8 tons were transferred from the United States on 2 June 1955. 13 LCMs, Nos. 1030—1042, were transferred from the United States under MAP in 1961.

HIGH SPEED BOATS (Kosoku)

KOSOKU 4	KOSOKU 5
Displacement:	26 tons
Dimensions:	75 $\frac{1}{2}$ \times 18 \times 2 $\frac{1}{2}$ feet
Machinery:	2 Packard engines. B.H.P.: 3,000=40 kts.

General

Of aluminium construction. Laid down on 10 Oct. 1958 and 11 Dec. 1958 at Mitsubishi, Shimonoseki Works under the 1957 and 1958 Programme, launched on 11 Dec. 1958 and 2 Mar. 1959, and completed on 11 May 1959 and 12 June 1959, respectively. Pennant Nos. ASH 04 and 05.

KOSOKU 1	KOSOKU 2	KOSOKU 3
Displacement:	30 tons	
Dimensions:	65 $\frac{1}{2}$ \times 17 \times 2 $\frac{1}{2}$ feet	
Machinery:	2 Packard petrol engines. B.H.P.: 3,000=42 kts.	

General

ASH category. Of wooden construction. Former names of Kosoku 1 and 2 were YS 03, YS 04 as service craft. All are Maritime Self-Defence Force auxiliaries.

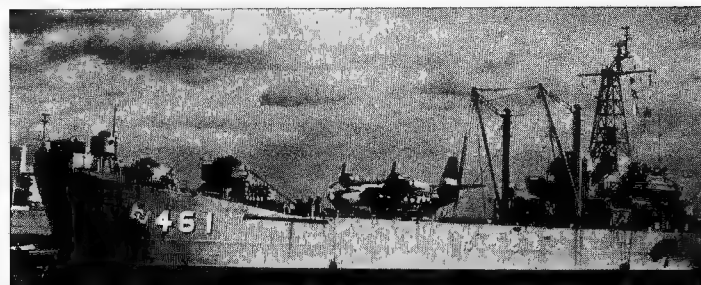
KOSOKU 29	KOSOKU 21, 22, 23, 24, 25, 26, 27, 28, 30
Displacement:	46 tons
Dimensions:	85 $\frac{1}{2}$ \times 20 $\frac{1}{2}$ \times 4 $\frac{1}{2}$ feet
Machinery:	2 Packard engines. B.H.P.: 3,000=34 kts.
KOSOKU 11, 12	
Displacement:	30 tons
Dimensions:	63 $\frac{1}{2}$ \times 15 \times 6 feet
Machinery:	2 petrol engines. B.H.P.: 1,200=33.5 kts.

General

Pennant Nos.: ASH 11, 12 and 21-26 were transferred under MAP in 1958-59. Pennant Nos.: ASH 27-30 were transferred under MAP in 1961-62.

There is also a new fire defence boat, Shobo 41, 45 tons, 75 \times 18 \times 3 $\frac{1}{2}$ feet, 4 diesels=19 kts. Built by Azuma Zosen, Yokosuka, completed on 28 Feb. 1964.

MINESWEEPER TENDERS (MST)



HAYATOMO

1963, Tatuo Kamino

1 Ex-U.S. LST Type

HAYATOMO (ex-U.S.S. Hamilton County, LST 802)
Displacement:
Dimensions:
Guns:
Machinery:
Complement:

General

Former United States tank landing ship. Built by Jeffersonville B. & M. Co., Jeffersonville, Ind. Laid down on 2 Sep. 1944, launched on 19 Oct. 1944, and completed on 13 Nov. 1944. Purchased from the U.S. Navy on 30 June 1960. Rated as an MSC Tender. Pennant No.: MST 461.

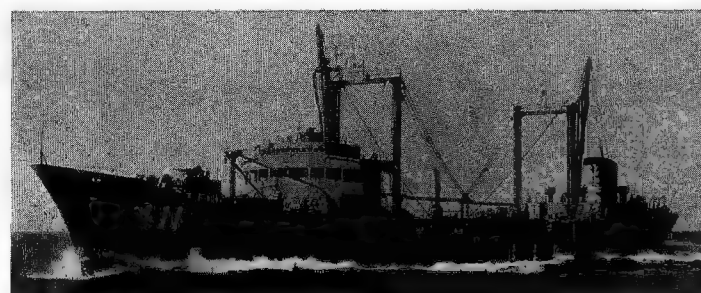
2 "Miho" Class

MIHO (ex-U.S.S. FS 524)	706 tons	NASAMI (ex-U.S.S. FS 408)
Displacement:	177 \times 30 \times 10 feet	
Dimensions:	Diesels, 2 shafts. B.H.P.: 1,000=11 kts.	
Machinery:		

General

Transferred from the United States in 1955. Nasami is rated as a minesweeper tender (MST), Miho, formerly rated as ASS, was reitied as an inshore minesweeper depot ship in August 1959. A photograph of Nasami appears in the 1957-58 edition.

OILERS (AO)



HAMANA

1963, Uraga Shipbuilding Yard, Builders

HAMANA
Displacement:
Dimensions:
Guns:
Machinery:

General

Built by Uraga Dock Co. under the 1960 programme. Laid down on 17 Apr. 1961, launched on 24 Oct. 1961, and completed on 10 Mar. 1962. Named after the lake.

YO-07

Displacement:	213 tons light (711 tons full load)
Machinery:	2 sets diesels, 2 shafts. B.H.P.: 400=9 kts.

General

Built by Hayashikane S.B. & Eng. Co. Shimonoseki. Completed on 28 Feb. 1963. There is also YW-10, a water carrier of 178 tons completed on 11 Mar. 1963.

ICEBREAKER

FUJI

Displacement:	5,250 tons standard, 7,760 normal (8,500 full load)
Dimensions:	328 \times 72 $\frac{1}{2}$ \times 29 feet
Aircraft:	3 helicopters
Machinery:	Diesel electric, 2 shafts. S.H.P.: 12,000=16 kts.
Radius:	5,000 miles at 15 kts.
Complement:	200 plus 35 scientists and observers

General

Icebreaker and Antarctic Support Ship. Built by Tsurumi Shipyard, Yokohama. Nippon Kokan Kabushiki Kaisha. Laid down on 28 Aug. 1964 and launched on 18 Mar. 1965 for delivery on 15 July. Equipped with hangar and flight deck aft. Pennant No. 5001. Named after the mountain.

TUGS

YT-35

Displacement:	100 tons normal
Machinery:	2 sets diesels, 2 shafts. B.H.P.: 400=9 kts.

General

Built by Hayashikane S.B. & Eng. Co. Completed on 28 Feb. 1963. Harbour tug.

TOBA

Displacement:	390 tons
Dimensions:	126 $\frac{1}{2}$ \times 28 \times 12 feet
Machinery:	1 diesel. B.H.P.: 1,200=11 kts.

General

AST category. Of wooden construction. Former name was LT 392.

SUMA

Displacement:	115 tons
Dimensions:	70 $\frac{1}{2}$ \times 19 \times 5 feet
Machinery:	1 diesel. B.H.P.: 600=12 kts.

General

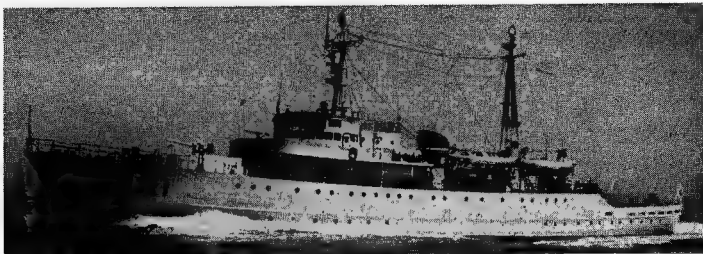
ATR category. Steel construction. Former name YTL 749. The small harbour tugs YTL 162, 167, 203, 244, 748, 749 and 750 were transferred by the U.S.A.

MARITIME SAFETY AGENCY

Established in May 1948 as an external organisation of the Ministry of Transportation.

Personnel: 11,268 as of 1 Jan. 1965

LARGE PATROL VESSELS

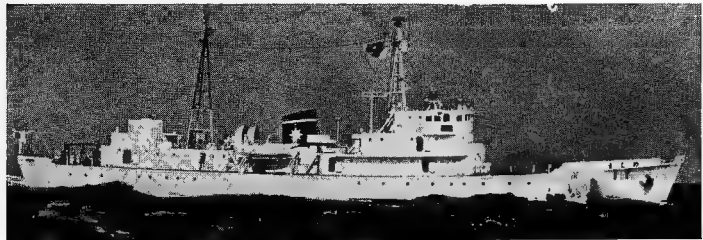


KOJIMA 1965, Japanese Maritime Safety Agency, Official

KOJIMA PL 21

Displacement: 1,100 tons
Dimensions: 228½×33½×10½ feet
Machinery: Diesels, H.P.: 2,600=17 kts.

General
Maritime Safety Agency's new training ship. Completed on 21 May 1964 at Kure Zosen.



NOJIMA 1963, Japanese Maritime Safety Agency, Official

2 "Nojima" Class

NOJIMA PL 11

Displacement: 950 tons standard, 980 tons normal (1,100 tons full)
Dimensions: 208½ (pp.), 226½ (o.a.)×30½×10½ feet
Machinery: 2 sets diesels, B.H.P.: 3,000=17.5 kts.
Radius: 6,000 miles at 14 kts.
Complement: 51

General
Nojima was built by Uruga Dock Co. Ltd. Laid down on 27 Oct. 1961, launched on 12 Feb. 1962, and completed on 30 Apr. 1962. Ojika was completed on 10 June 1963. Both employed as patrol vessels and weather ships.



ATSUMI 1961, Official

2 "Ukuru" Class (ex-Frigates)

SATSUMA (ex-Ukuru) PL 104

TSUGARU (ex-Shinnan) PL 105

Displacement: 940 tons standard (1,020 tons trials)
Dimensions: 258½ (o.a.)×30×10 feet
Guns: 1—3 inch, 50 cal.; 2—20 mm. AA.
Machinery: Diesel, 2 shafts, B.H.P.: 3,000=18.5 kts.
Radius: 5,000 miles at 16 kts.

General
Former escorts or frigates of the "Ukuru" class, of the Imperial Japanese Navy. Launched in 1944-45. Now employed both as patrol vessels and weather ships.



MUROTO 1964, Kōhji Ishiwata

2 "Muroto" Class

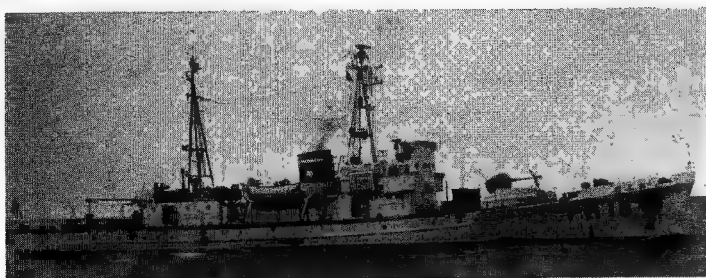
DAIO PL 02

MUROTO PL 01

Displacement: 750 tons standard (840 tons normal)
Dimensions: 182 (pp.), 200 (o.a.)×30½×10½ feet
Guns: 1—3 inch, 50 cal.; 2—20 mm. AA.
Machinery: 2 sets, 4 cycle single acting diesels, 270 r.p.m. B.H.P.: 1,500=15.37 kts. (trials), 12 kts. (service)

General
Muroto, built by Uruga Dock Company Ltd., Tokyo, was laid down on 16 Aug. 1949, launched on 5 Dec. 1949, and delivered on 20 Mar. 1950 to the Maritime Safety Agency. Rated as Large Patrol Vessels. Vertical tubular donkey boiler, three generators, wireless, radar, direction finder, echo-sounder, etc.; novel streamlined bridge wings.

MEDIUM PATROL VESSELS



CHIFURI 1962, Japanese Maritime Safety Agency, Official

5 "Chifuri" Class

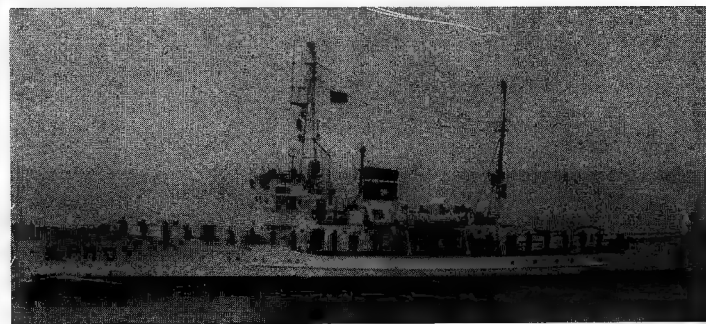
CHIFURI PM 18
KUROKAMI PM 19

KOZU PM 20
SHIKINE PM 21

DAITO FM 22

Displacement: 465 tons standard (483 tons normal)
Dimensions: 169 (pp.), 177 (w.l.)×25½×8½ feet (normal)
Guns: 1—3 inch, 50 cal.; 1—20 mm. AA.
Machinery: 2 sets diesels, B.H.P.: 1,300=15.8 kts.
Radius: 4,400 miles at 12 kts.

General
An improved version of the "Rebun" class design. All completed in 1952.



GENKAI 1963, Official

14 "Rebun" Class

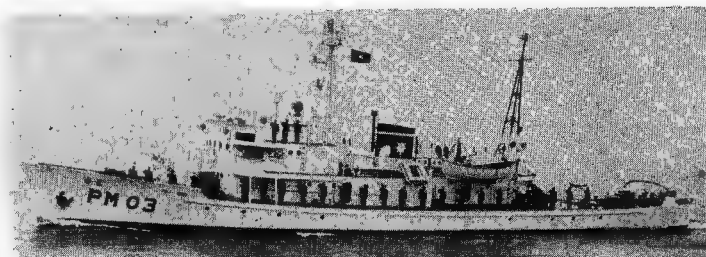
REBUN PM 04
IKI PM 05
OKI PM 06
GENKAI PM 07

HACHIJO PM 08
AMAKUSA PM 09
OKUSHIRI PM 10
KUSAKAKI PM 11
RISHIRI PM 12

NOTO FM 13
HEKURA PM 14
MIKURA PM 15
KOSHIKI PM 16
HIRADO PM 17

Displacement: 450 tons standard (488 tons trials, 495 tons normal)
Dimensions: 155½ (pp.), 164 (w.l.), 170 (o.a.)×26½×8½ feet
Guns: 1—3 inch, 50 cal.; 1—20 mm. AA.
Machinery: 2 sets diesels B.H.P.: 1,300=15 kts.
Radius: 3,000 miles at 12 kts.

General
A development of the original "Awaji" class design. All completed in 1951. Photographs
A photograph of Mikura appears in the 1961-62 to 1964-65 editions.



SADO Added 1964

3 "Awaji" Class

AWAJI PM 01

MIYAKE PM 02

SADO PM 03

Displacement: 510 tons standard (550 tons normal)
Dimensions: 172 (o.a.)×26½×9½ feet
Guns: 1—3 inch, 50 cal.; 1—20 mm. AA.
Machinery: 2 sets diesels, B.H.P.: 1,300=15 kts.
Radius: 3,000 miles at 12 kts.

General
Of a design resembling United States Coast Guard Cutters. All completed in 1950. Photographs
A photograph of Awaji appears in the 1962-63 and 1963-64 editions.

1 "Miura" Type

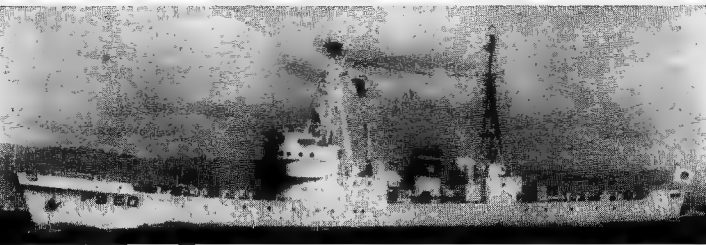
MIURA PL 101

Displacement: 680 tons standard (879 tons normal)
Dimensions: 160½ (pp.), 175½ (o.a.)×31½×11½ feet
Guns: 1—3 inch, 50 cal.; 2—20 mm. AA.
Machinery: Reciprocating, 2 shafts, I.H.P.: 2,200=12 kts.
Boilers: 2

General
Former naval tug. Completed on 5 Dec. 1944. Officially rated as a large patrol vessel.

Disposals
Of the former naval escorts or frigates of the "Ukuru" class (see column 1), Atsumi (ex-Chikabu) PL 103 was officially deleted from the list in 1962, Ojika (ex-Ikuna) PL 102 in 1963, and Kojima (ex-Shiga) PL 106 in 1964.

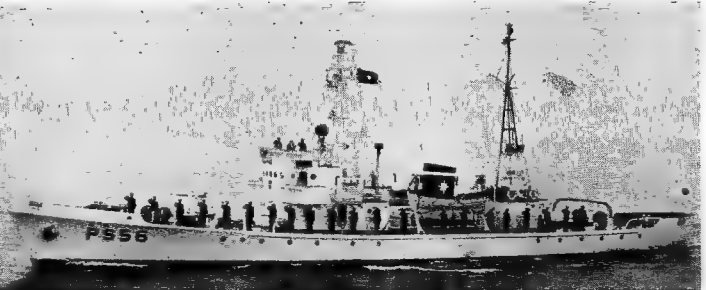
SMALL PATROL VESSELS



MATSUURA 1962, Japanese Maritime Safety Agency, Official
3 "Matsura" Class

AMAMI PS 62	MATSUURA PS 60	SENDAI PS 61
Displacement:	420 tons standard (425 tons normal)	
Dimensions:	163½ (pp.), 181½ (o.a.)×23×7½ feet	
Guns:	1—20 mm. AA.	
Machinery:	2 sets diesels. B.H.P.: 1,400=16.5 kts.	
Radius:	3,500 miles at 13 kts.	
Complement:	37	

Construction
Built by Osaka Shipbuilding Co. Ltd. Matsura was laid down on 16 Oct. 1960, launched on 24 Dec. 1960 and completed on 18 Mar. 1961. Sendai was laid down on 23 Aug. 1961, launched on 18 Jan. 1962 and completed on 21 Apr. 1962. Amami is under construction.

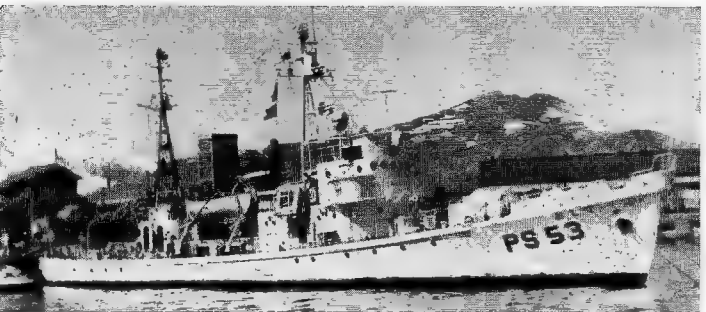


CHITOSE 1961, Official

6 "Yahagi" Class

CHITOSE PS 56	SORACHI PS 57	YAHAGI PS 54
HORONAI PS 59	SUMIDA PS 55	YUBARI PS 58
Displacement:	333.15 tons standard .375.7 tons normal	
Dimensions:	147½ (pp.), 157½ (w.l.)×24×7½ feet (normal)	
Guns:	1—40 mm. AA.	
Machinery:	2 sets diesels. B.H.P.: 1,400=15.5 kts.	
Radius:	4,000 miles at 12 kts.	
Complement:	37	

General
All built by Niigata Engineering Co. Ltd. Yahagi was laid down on 9 Dec. 1955, launched on 19 May 1956 and completed on 31 July 1956. Sumida was completed on 30 June 1957. Chitose was laid down on 20 Sep. 1957, launched on 24 Feb. 1958 and completed on 30 Apr. 1958. Sorachi was completed in Mar. 1959. Yubari was completed on 15 Mar. 1960. Horonai was completed on 4 Feb. 1961. A photograph of Yahagi appears in the 1959-60 and 1960-61 editions.



TESHIO 1962, Japanese Maritime Safety Agency, Official

1 "Teshio" Class

TESHIO PS 53	
Displacement:	421.5 tons normal
Dimensions:	149½ (pp.), 159 (w.l.)×23×8½ feet
Guns:	1—40 mm. AA.
Machinery:	2 sets diesels. B.H.P.: 1,400=15.71 kts.
Radius:	3,690 miles at 12 kts.
Complement:	37

Construction
Built by Uraga Dock Co. Ltd. Laid down on 15 Sep. 1954, launched on 12 Jan. 1955 and completed on 19 Mar. 1955

3 "Nagara" Class

NAGARA PS 18	STONE PS 19	KITAKAMI PS 20
Displacement:	260 tons	
Dimensions:	131½×23×7½ feet	
Guns:	1—40 mm. AA.	
Machinery:	2 diesels. 2 shafts. B.H.P.:800=13.5 kts.	
Radius:	2,000 miles at 12 kts.	
Complement:	35	

General
Improved versions of the "Kuma" class. All launched and completed in 1952.

Small Patrol Vessels—continued

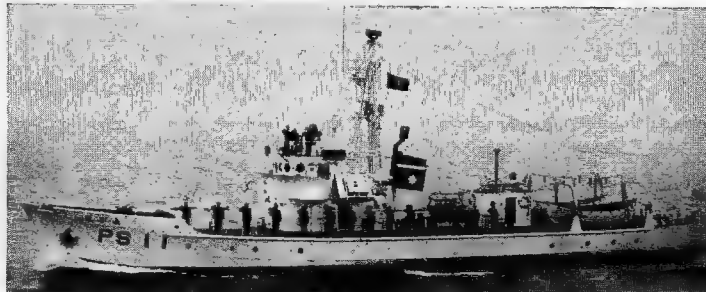


TOKACHI 1962, Japanese Maritime Safety Agency, Official

2 "Tokachi" Class

TOKACHI PS 51	TATSUTA PS 52
Displacement:	336 tons standard, 381 tons normal (Tokachi) 324 tons standard, 369 tons normal (Tatsuta)
Dimensions:	157½ (pp.), 164 (w.l.), 170 (o.a.)×21½×11½ feet
Guns:	1—40 mm. AA.
Machinery:	2 sets of 4 cycle single acting diesels. B.H.P.: 1,500=16 (max.), 12 kts. (service) (Tokachi) 1,400=15 (max.), 12 kts. (service) (Tatsuta)
Radius:	3,824 miles at 12 kts. (Tokachi) 3,930 miles at 12 kts. (Tatsuta)
Complement:	37

General
Tokachi was built by Harima Dockyard, Kure. Laid down on 14 Nov. 1953, launched on 8 May 1954 and completed on 31 July 1954. Tatsuta was completed on 10 Sep. 1954. A photograph of Tatsuta appears in the 1955-56 to 1958-59 editions.



MOGAMI 1961, Official

17 "Kuma" Class

KUMA PS 01	SAGAMI PS 06	YOSHINO PS 12
FUJI PS 02	OYODO PS 07	NOSHIRO PS 13
TENRYU PS 03	ABUKUMA PS 08	KISO PS 14
ISUZU PS 04	KUZURYU PS 09	SHINANO PS 15
ISHIKARI PS 05	KIKUCHI PS 10	CHIKUGO PS 16
	MOGAMI PS 11	KUMANO PS 17
Displacement:	258 tons standard, 275 tons normal	
Dimensions:	122 (pp.), 126½ (w.l.), 132½ (o.a.)×23×7½ feet	
Guns:	1—40 mm. AA.	
Machinery:	2 sets diesels. B.H.P.: 800=13.6 kts.	
Radius:	2,000 miles at 12 kts.	
Complement:	35	

Construction
Kuma was built by Nihon Kokan Ltd., Tsurumi Dockyard, laid down on 29 Sep. 1950, launched on 12 Jan. 1951 and completed on 24 Mar. 1951.



ASACHIDORI 1964, Kohji Ishiwata

13 "Kawachidori" Class

KAWACHIDORI PS 101	TOMOCHIDORI PS 105	MURACHIDORI PS 109
HAMACHIDORI PS 102	OKICHIDORI PS 106	ISOCHIDORI PS 111
ASACHIDORI PS 103	SAWACHIDORI PS 107	SHIMACHIDORI PS 112
MIOCHIDORI PS 104	WAKACHIDORI PS 108	IWACHIDORI PS 114
		HARUCHIDORI PS 115
Displacement:	300 tons	
Dimensions:	152½ (o.a.)×22½×7½ feet	
Machinery:	2 diesels. B.H.P.: 800=14 kts.	
Complement:	27	

General
Former naval aircraft rescue vessels, now employed as local patrol vessels. PS 108, 109 and 112 are of older, smaller and different type. A photograph of Sayochidori appears in the 1956-57 to 1963-64 editions, and of Hamachidori in the 1959-60 to 1963-64 editions. Namichidori, PS 110, and Sayochidori, PS 113; were officially deleted from the list in 1965.

2 "Kabashima" Type

KABASHIMA PS 100	KOMADORI PS 152
General Small patrol vessels displacing about 100 tons. Of this group Fujitaka, PS 151, and Hayabusa, PS 153, were officially deleted from the list in 1965.	
Disposals Of the "Kasasagi" class auxiliary submarine chasers, Oshidori, Yamasei and Kotaka were discarded in 1956. Kawasemi and Shigi in 1957, Hayabusa and Yamadori in 1958, Kasasagi and Shirataka in 1959, Uguisu, Tsugami, Hatsukari, Chitori, Uzura and Yamagara in 1960, Manaburu, Hibari Kamome and Aasagi in 1961, Hato and Hinazuru in 1962, and Hoojiro, Sekirei and Wakasagi in 1963.	

Small Patrol Vessels—continued



HIDAKA 1963, Japanese Maritime Safety Agency, Official

8 "Hidaka" Class

AKIYOSHI	PS 37	HIYAMA	PS 33	TAKANAWA	PS 36
HIDAKA	PS 32	KUNIMI	PS 38	TAKATSUKI	PS 39
		ROKKO	PS 35	TSURUGI	PS 34

Displacement: 164.2 to 164.4 tons standard, 169.4 tons normal
 Dimensions: 100 (pp.), 111 (o.a.) \times 20 $\frac{1}{2}$ \times 5 $\frac{1}{2}$ feet
 Machinery: 1 set diesels, 1 shaft, B.H.P.: 690 to 700=13.5 kts.
 Radius: 1,100 miles at 12 kts.

Construction

Hidakaka was built by Abuma Shipbuilding Co., laid down on 4 Oct. 1961, launched on 2 Mar. 1962 and completed on 23 Apr. 1962. Both Hiyama and Tsurugi were completed in Mar. 1963 by Hitachi Shipbuilding Co. Kunimi was built under the 1964 fiscal year programme by Hayashikane Shipbuilding & Engineering Co., Shimonoiki, laid down on 15 Nov. 1964, launched on 19 Dec. 1964 and completed on 15 Feb. 1965. Three more local patrol ships are to be completed in 1965.



TSUKUBA 1963, Japanese Maritime Safety Agency, Official

1 Special Rescue Type

TSUKUBA PS 31

Displacement: 65 tons
 Dimensions: 80 $\frac{1}{2}$ \times 21 $\frac{1}{2}$ \times 3 $\frac{1}{2}$ feet
 Machinery: 2 Niigata diesels, B.H.P.: 900=18.44 kts. (trials) 16 kts. continuous sea speed
 Radius: 300 miles at 12 kts.

General

Special rescue patrol boat built to suit local conditions by Hitachi Zosen at the Kanagawa Shipyard and completed on 30 Mar. 1962.

RESCUE SHIP



SOYA 1959, Japanese Maritime Safety Agency, Official

SOYA PL 107

Displacement: 4,364 tons normal (4,818 tons full load)
 Dimensions: 259 $\frac{1}{2}$ (w.l.) \times 51 $\frac{1}{2}$ (including bulge) \times 18 $\frac{1}{2}$ feet
 Aircraft: 4 helicopters (see General)
 Machinery: 2 sets diesels, B.H.P.: 4,800=12.5 kts. on trials
 Radius: 16,400 miles at 11 kts.
 Complement: 96

General

Originally a large Lighthouse Supply Ship and Navigational Aid Vessel (LL) but converted by Asano Dockyard of Nippon Steel Tube Co. Ltd. into a South Pole Research Ship. Her first conversion began on 12 Mar. 1956 and was completed on 10 Oct. 1956. The second conversion began on 1 July 1957 and was completed on 30 Sep. 1957. The third conversion was completed on 5 Oct. 1958. She carried two Sikorsky S-58 helicopters and two Bell 47G-2 helicopters on a new flight platform laid on the quarter deck for exploration and surveying in the Antarctic. She was designed for breaking ice more than 4 feet thick. Upon completion of her Antarctic research mission in 1963 she was assigned to guard and rescue service as an ordinary patrol vessel.

PATROL CRAFT



HANAYUKI

1963, Official

10 "Shinonome" Class

SHINONOME	PC 30	YAEGUMO	PC 33	TATSUGUMO	PC 36
HATAGUMO	PC 31	ASAGUMO	PC 34	HANAYUKI	PC 37
MAKIGUMO	PC 32	NATSUGUMO	PC 35	MINEYUKI	PC 38
				ISOYUKI	PC 39

Displacement: 43 to 46 tons normal
 Dimensions: 69 \times 17 $\frac{1}{2}$ \times 3 $\frac{1}{2}$ feet (Hatagumo, Makigumo, Shinonome, Yaegumo)
 69 \times 17 $\frac{1}{2}$ \times 3 $\frac{1}{2}$ feet (Asagumo, Natsugumo, Tatsugumo)
 Machinery: 2 diesels, B.H.P.: 1,400=21 kts.
 2 diesels, B.H.P.: 1,000=18.8 kts. (Shinonome)
 Complement: 9

General

Hanayuki and Mineyuki were completed in Mar. 1959. Asagumo on 15 Mar. 1955. Natsugumo on 31 Mar. 1955, Tatsugumo on 31 May 1955. Isoyuki on 29 Feb. 1960, and the others before Oct. 1954. Shimakaze PC 40 was officially deleted from the list in 1964.



HIRYU

1963, Official

1 Ex-U.S. PT Type.

HIRYU PC 109

Displacement: 33.5 tons normal
 Dimensions: 71 $\frac{1}{2}$ (w.l.) \times 18 $\frac{1}{2}$ \times 4 $\frac{1}{2}$ feet
 Machinery: 2 Packard engines, B.H.P.: 1,200=15 kts.

General

Former United States motor torpedo boat of the PT type which served in the U.S. Navy in the Second World War. Built by Annapolis Yacht Yard Inc., Annapolis, Ind., in 1943. Acquired from the U.S.A. in 1957 and delivered to the Japanese Government. Converted to a patrol craft by Azuma Shipbuilding Co., Yokosuka, engines being replaced. Rated as an inshore patrol boat.



AYANAMI

1964, Japanese Maritime Safety Agency, Official

24 "Hatsunami" Class

HATSUNAMI	PC 01	CHIYONAMI	PC 09	TERUZUKI	PC 17
AYANAMI	PC 02	HAYANAMI	PC 10	URAZUKI	PC 18
ISONAMI	PC 03	HATSUZUKI	PC 11	WAKAZUKI	PC 19
URANAMI	PC 04	HANAZUKI	PC 12	YAMAZUKI	PC 20
KYONAMI	PC 05	KIYOZUKI	PC 13	HARUZUKI	PC 21
OKINAMI	PC 06	MOCHIZUKI	PC 14	NATSUZUKI	PC 22
TAMANAMI	PC 07	NIIZUKI	PC 15	AKIZUKI	PC 23
SUZUNAMI	PC 08	SUZUTSUKI	PC 16	FUYUZUKI	PC 24

Displacement: 45 tons normal
 Dimensions: 75 $\frac{1}{2}$ (o.a.) \times 15 $\frac{1}{2}$ \times 3 $\frac{1}{2}$ feet
 Machinery: 2 diesels, B.H.P.: 700=14 kts.

General

Rated as local patrol boats. Seaward defence patrol craft and small submarine-chaser type. A photograph of Suzutsuki appears in the 1953-54 to 1960-61 editions.

1 "Mutsuki" Type

MUTSUKI PC 25

Displacement: 55 tons normal
 Dimensions: 83 $\frac{1}{2}$ (o.a.) \times 16 \times 3 $\frac{1}{2}$ feet
 Machinery: 2 diesels, B.H.P.: 1,000=15 kts.

General

A small general purpose vessel officially rated as a local patrol craft.

SURVEYING VESSELS



MEIYO 1964, Kohji Ishiwata

MEIYO HL 03

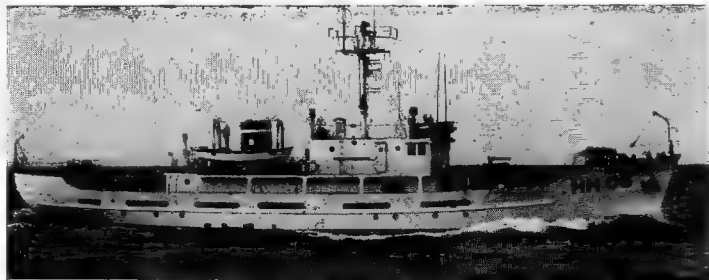
Displacement: 486 tons normal
Measurement: 360 tons gross
Dimensions: 133 (w.l.), 146 (o.a.)×26½×9½ feet
Machinery: 1 set diesels, Controllable pitch propeller
B.H.P.: 700=12 kts.
Radius: 4,500 miles at 10 kts.
Complement: 40

General
Built by Nagoya Shipbuilding & Engineering Co., Nagoya. Laid down on 14 Sep. 1962, launched on 22 Dec. 1962, and completed on 15 Mar. 1963.
Disposal
The former *Melvo* (HL 01) was discarded on 1 Mar. 1963 due to old age, and replaced by the new *Melvo* above.

TAKUYO HL 02

Displacement: Approx. 880 tons standard, 930 tons normal
Dimensions: 185 (pp.), 192½ (w.l.)×31½×10½ feet (normal)
Machinery: 2 sets diesels, B.H.P.: 1,300=14 kts. (max.)
Radius: 8,000 miles at 12 kts.

General
Built for the Maritime Safety Agency, by Niigata Engineering Co. Ltd. Laid down on 19 May 1956, launched on 19 Dec. 1956, and completed in March 1957. A photograph appears in the 1958-59 to 1964-65 editions



KAIYO 1965, Japanese Maritime Safety Agency, Official

KAIYO HM 06

Displacement: 378 tons normal
Dimensions: 132½ (w.l.), 146 (o.a.)×26½×7½ feet
Machinery: 1 set diesels, B.H.P.: 450=12 kts.
Radius: 6,100 miles at 11 kts.

General
Built by Nagoya Shipbuilding & Engineering Co., Nagoya. Completed on 14 Mar. 1964. Rated as Medium Surveying Vessel, Controllable pitch propeller.

COASTAL LAUNCHES

ARAKAZE	CL 14	IWAKAZE	CL 19	YODOKAZE	CL 24
HARUKAZE	CL 15	NATSUKAZE	CL 20	ASAKAZE	CL 25
SACHIKAZE	CL 16	YUKIKAZE	CL 21	YAKAZE	CL 26
HATAKAZE	CL 17	SHIMAKAZE	CL 22	KIYOKAZE	CL 27
MATSUKAZE	CL 18	YUKAZE	CL 23	IYOKAZE	CL 28

General
Arakaze is constructed of light alloy, welding having been used for approx. 40 per cent of the hull; she was laid down on 11 Nov. 1953, launched on 11 Feb. 1954 and completed on 29 Mar. 1954. A photograph of *Arakaze* appears in the 1958-59 to 1964-65 editions. *Harukaze*, *Hatakaze*, *Iwakaze*, *Matsukaze*, *Natsukaze* and *Sachikaze* are of wooden construction. *Natsukaze* was completed on 15 Feb. 1960.

HARBOUR DEFENCE BOATS

CL 01 to CL 13	CL 101 to CL 158
HATSUKAZE (CL 13)	KAWAKAZE (CL 11)
	UMIKAZE (CL 08)

General
53 harbour patrol boats of various types ranging from 12 to 106 tons displacement. There are 22 sister boats including the 15m. type in the CL 1 to 11 class. A photograph of CL 11 appears in the 1953-54 to 1960-61 editions.

SERVICE CRAFT

CS 01 to CS 62	CS 102 to CS 126
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General
81 small craft of various displacements. There are also CF boats (fire-fighting) and 18 CR boats (rescue); 3 HM boats and 20 HS boats ranging from 5 to 7 tons in the surveying and hydrographic service; and 6 LM boats and 81 LS boats for navigational aid service. A photograph of *Isogiku*, CS 62, appears in the 1960-61 to 1964-65 editions.

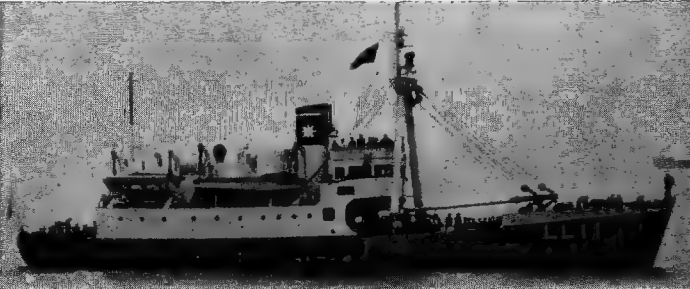
TENDERS



WAKAKUSA 1958, Japanese Maritime Safety Agency, Official

WAKAKUSA LL 01
Displacement: 1,815 tons
Dimensions: 204×32½×19½ feet
Machinery: H.P.: 1,850

General
Built by Hitachi Innoshima Dockyard in Mar. 1946. Purchased from Osaka Shosen Kaisha, in Jan. 1956. Rated as Navigation Aid Vessel (Lighthouse Supply Ship).



HOKUTO 1964, Kohji Ishiwata

GINGA LL 12
Displacement: 500 tons
Dimensions: 128½×31½×13½ feet
Machinery: 2 diesels, B.H.P.: 420=11-26 kts.
Radius: 2,800 miles at 10 kts.

KAIO LL 13

General
The above three are not sister ships. The above particulars refer to *Ginga* which was built by Osaka Shipbuilding Co. Ltd. Laid down on 11 Nov. 1953, launched on 6 May 1954 and completed on 30 June 1954. Equipped with 15 ton derrick for laying buoys. Rated as Navigation Aid Vessels (Buoy Tenders). A photograph of *Ginga* appears in the 1955-56 to 1964-65 editions.

KENYA

The Kenya Navy, which is based in Mombasa, was inaugurated on 12. Dec. 1964, the first anniversary of Kenya's independence.
Commander, Kenya Navy: Commander E. M. C. Walker.

SEAWARD DEFENCE BOAT



NYATI 1965, Kenya Navy, Official

1 British "Ford" Class

NYATI (ex-H.M.S. *Aberford*)
Displacement: 120 tons standard (160 tons full load)
Dimensions: 110 (pp.), 117½ (o.a.)×20×5 feet
Guns: 1—40 mm. Bofors AA.
Machinery: Davey Paxman diesels, B.H.P. 1,100=18 kts.

General
Transferred on loan from Great Britain in 1964. Photograph taken at Mombasa in Dec.

COASTAL PATROL CRAFT

3 New Construction

CHUI	SIMBA
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Displacement: 96 tons standard (109 tons full load)
Dimensions: 95 (w.l.), 103 (o.a.)×19½×5½ feet
Guns: 2—40 mm. Bofors AA.
Machinery: Paxman diesels, B.H.P.: 2,800=24 kts.

General
Ordered from Vosper Limited, Portsmouth, on 28 Oct. 1964 for delivery in mid-1966. Of generally similar design to the fast patrol boats built by Vosper for Trinidad & Tobago.

KOREA

Administration

Chief of Naval Operations:
Vice-Admiral Lee, Maeng Ki.
Vice Chief of Naval Operations:
Rear-Admiral Ham, Myong Su.

Commander-in-Chief of Fleet:
Rear Admiral Hyun, Si Hak.
Naval Attaché in London:
Colonel Joong Bo Kim.
Naval Attaché in Washington:
Captain Tae Young Shin.

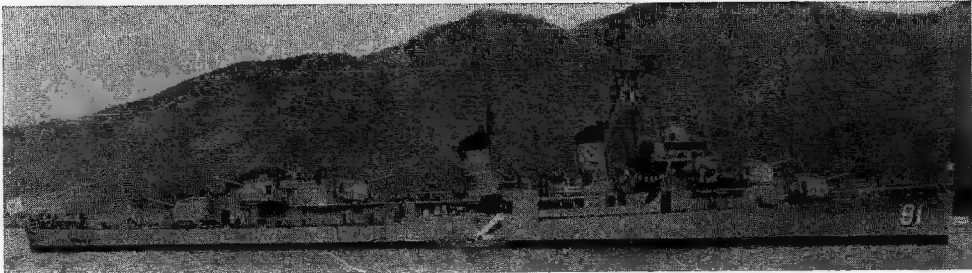
Personnel
1965: 16,600 (1,850 officers, 450 midshipmen, 14,300 men)
Mercantile Marine
Lloyd's Register of Shipping:
59 vessels of 122,254 tons gross

DESTROYER

I Ex-U.S. "Fletcher" Type

CHUNG MU (ex-U.S.S. Erben, DD 631)

Pennant No.: DD 91
Builders: Bath Iron Works Corp., Bath, Maine
Laid down: 28 Oct. 1942
Launched: 21 Mar. 1943
Completed: 28 May 1943
Displacement: 2,100 tons standard (3,050 tons full load)
Dimensions: 376½ (o.a.)×39½×12½ (mean), 18 (max.) feet
Guns: 5—5 inch, 38 cal. d.p.; 6—40 mm. Bofors AA.
Tubes: 5—21 inch (quintupled)
A/S weapons: 2 fixed Hedgehogs; 1 D.C. rack; 2 side launching torpedo racks
Machinery: 2 General Electric geared turbines, 2 shafts. S.H.P.: 60,000=35 kts.
Boilers: 4 Babcock & Wilcox



CHUNG MU

1964, Korean Navy, Official

Oil fuel: 650 tons
Radius: 6,000 miles at 15 kts.
Complement: 300

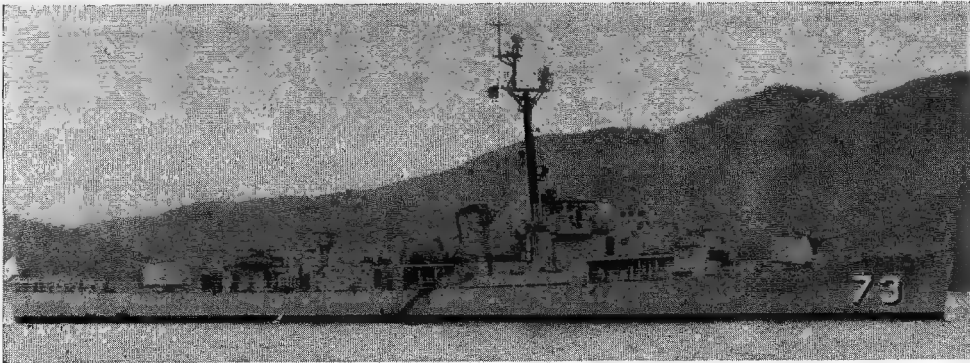
Transfer
Former United States destroyer of the "Fletcher" class, transferred to Korea in May 1963 and renamed.

FRIGATES

I Ex-U.S. "Rudderow" Type
Destroyer Escort

CHUNG NAM (ex-U.S.S. Holt, DE 706)

Pennant No.: DE 73
Builders: Defoe Shipbuilding Co., Bay City
Launched: 15 Dec. 1943
Completed: 9 June 1944
Displacement: 1,450 tons standard (2,230 tons full load)
Dimensions: 306 (o.a.)×36½×14 (max.) feet
Guns: 2—5 inch, 38 cal.; 2—40 mm. AA., 6—20 mm. AA.
A/S weapons: D.C.T.
Machinery: General Electric geared turbines, Turbo-electric propulsion 2 shafts. S.H.P.. 12,000=24 kts.
Boilers: 2 Combustion Engineering type
Oil fuel: 378 tons
Radius: 5,000 miles at 15 kts.
Complement: 186 (6 officers (180 men)



CHUNG NAM

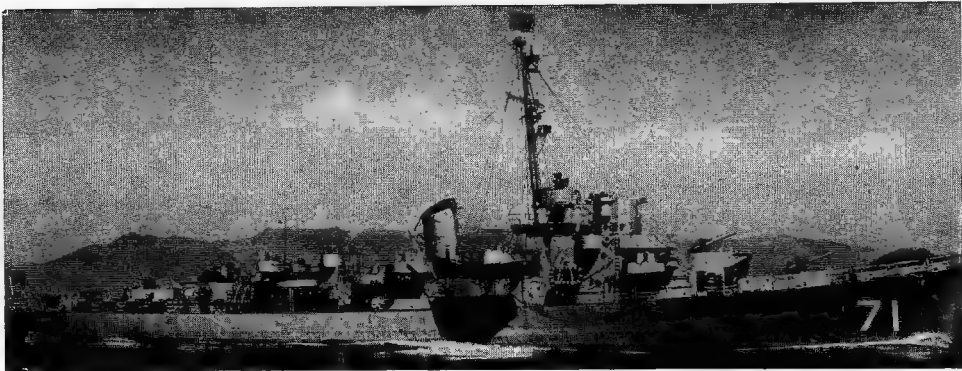
1964, Korean Navy, Official

Transfer
Former United States destroyer escort of the "Rudderow" class transferred to Korea at Seattle, Washington, on 16 June 1963 and renamed.

2 Ex-U.S. "Bostwick" Type
Destroyer Escorts

KANG WON (ex-U.S.S. Sutton, DE 771)
KYONG KI (ex-U.S.S. Muir, DE 770)

Name: Kang Won Kyong Ki
Pennant No.: DE 72 DE 71
Builders: Tampa S.B. Co. Tampa S.B. Co.
Launched: 6 Aug. 1944 4 June 1944
Completed: 22 Dec. 1944 30 Aug. 1944
Displacement: 1,240 tons standard (1,900 tons full load)
Dimensions: 306 (o.a.)×36½×10½ (mean), 14 (max.) feet
Guns: 3—3 inch, 50 cal. d.p.; 3—40 mm. AA.; 8—20 mm. AA.
Machinery: General Motors diesels with electric drive, 2 shafts. B.H.P.: 6,000=20 kts. sea speed
Oil fuel: 300 tons
Radius: 11,500 miles at 11 kts.
Complement: 208



KYONG KI

1963, Korean Navy, Official

General
Former American destroyer escorts, DE, of the "Bostwick" class. Transferred from the United States Navy at

Boston in 1956 under the Mutual Defense Assistance Program. The 3—21 inch torpedo tubes originally mounted were removed. Named after Korean States.

Photographs
A photograph of Kang Won appears in the 1958-59 to 1962-63 editions.

4 Ex-U.S. "Tacoma" Type Patrol Vessels (Frigates)

IMCHIN (ex-U.S.S. *Sausalito*, PF 4)
DUMAN (ex-U.S.S. *Muskogee*, PF 49)
NAKTONG (ex-U.S.S. *Hoquiam*, PF 5)
TAE DONG (ex-U.S.S. *Tacoma*, PF 3)

Displacement: 1,430 tons standard (2,415 tons full load)
Dimensions: 304 (o.a.)×37½×13½ feet
Guns: 3—3 inch, 50 cal. d.p., 2—40 mm., 9—20 mm. AA.
Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=18 kts.
Boilers: 2
Oil fuel: 645 tons
Radius: 9,500 miles at 12 kts.
Complement: 180

General

Former United States frigates, PF, of the "Tacoma" type transferred to the U.S.S.R. under the Lend-Lease scheme during the Second World War. Returned to the U.S. after hostilities and laid up at Yokosuka naval base. Reactivated on the outbreak of the Korean War. The first pair were loaned to the Korean Navy and commissioned on 5 Nov. 1950. The second pair were transferred on 8 Oct. 1951 at Yokosuka. *Apnok*, ex-U.S.S. *Rockford* (PF 48) in collision on 21 May 1952 was



TAE DONG

1963, Korean Navy, Official

decommissioned, returned to the U.S.N. and expended as a target in 1953. She was replaced by *Imchin*.

Photographs

A photograph of *Duman* appears in the 1958-59 to 1962-63 editions.

Name	Pennant No.
<i>Duman</i>	PF 61
<i>Naktong</i>	PF 65
<i>Taedong</i>	PF 63
<i>Imchin</i>	PF 66

Builders	Laid down	Launched	Completed
Consolidated Steel Corp.	18 Sep. 1943	18 Oct. 1943	16 Mar. 1944
Permanente Metals Corp.	10 Apr. 1943	31 July 1943	8 May 1944
Permanente Metals Corp.	10 Mar. 1943	7 July 1943	6 Nov. 1944
Kaiser Cargo Inc.	7 Apr. 1943	20 July 1943	4 Mar. 1944

FAST TRANSPORT



KYONG NAM

1961, Korean Navy, Official

Ex-U.S. Modified Destroyer Escort

KYONG NAM APD 81 (ex-U.S.S. *Cavallero*, APD 128, ex-DE 712)

Displacement: 1,400 tons standard (2,130 tons full load)
Dimensions: 300 (w.l.), 306 (o.a.)×37×12½ feet
Guns: 1—5 inch, 38 cal. d.p., 6—40 mm. AA.
Machinery: G. E. turbines with electric drive. 2 shafts. S.H.P.: 12,000=23 kts.
Boilers: 2 "D" Express
Oil fuel: 350 tons
Radius: 5,500 miles at 15 kts.
Complement: 210 plus 162 troops

General

Former United States high speed transports, APD, modified destroyer escorts. Built by the Defoe Shipbuilding Co., Bay City, Mich. Laid down on 28 Mar. 1944. Launched on 15 June 1944. Completed on 13 Mar. 1945. Transferred in 1959.

ESCORT VESSELS



OK PO

1961, Korean Navy, Official

8 Ex-U.S. "180 ft." Steel PCE Type

HAN SAN PCEC 53 (ex-U.S.S. <i>PCEC 873</i>)	RO RYANG PCEC 51 (ex-U.S.S. <i>PCEC 882</i>)
MYONG RYANG PCEC 52 (ex-U.S.S. <i>PCEC 896</i>)	RYUL PO PCE 58 (ex-U.S.S. <i>Somerset, PCEC 892</i>)
OK PO PCEC 55 (ex-U.S.S. <i>PCEC 898</i>)	SA CHON PCE 59 (ex-U.S.S. <i>Batesburg, PCE 903</i>)
PYOK PA PCE 57 (ex-U.S.S. <i>Danila, PCE 870</i>)	TANG PO PCE 56 (ex-U.S.S. <i>Maria, PCE 842</i>)

Displacement: 640 tons standard (967 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.)×33½×10 (max.) feet
Guns: 1—3 inch, 50 cal. d.p.; 3—40 mm. AA.; 8—20 mm. AA.
Machinery: Diesels. 2 shafts. B.H.P.: 2,000=14.3 kts. sea speed
Oil fuel: 260 tons
Radius: 4,300 miles at 10 kts.
Complement: 104

General

Former United States patrol vessels, escorts, PCE (four were later redesignated control escorts, PCEC, on assignment to amphibious forces). Built in 1942-45 by Albina Engine and Machine Works, Portland, Oregon (*Han San*, *Pyok Pa*, *Ro Ryang*), Pullman Standard Car Manufacturing Co., Chicago, Ill. (*Tang Po*), and Willamette Iron & Steel Corp., Portland, Oregon (*Myong Ryang*, *Ok Po*, *Ryul Po*, *Sa Chan*). Transferred from the United States Navy in Feb. 1955 (*Myong Ryang*, *Ro Ryang*). on loan, in 1956 (*Han San*, *Ok Po*) and 1961 (*Pyok Pa*, *Ryul Po*, *Sa Chan*, *Tang Po*). A photograph of *Han San* appears in the 1959-60 editions.

Escort Vessels—continued



SHIN SONG

1964, Korean Navy, Official

I Ex-U.S. "Auk" Class MSF Type

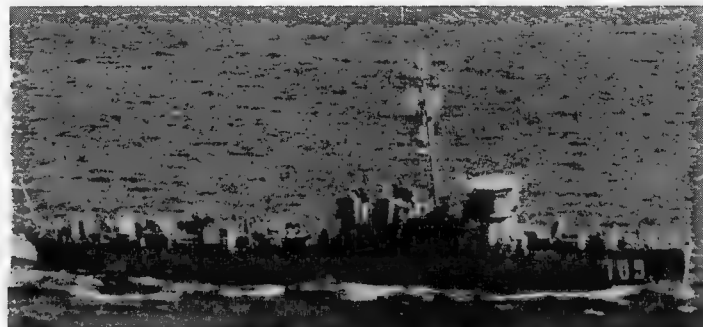
SHIN SONG PCE 1001 (ex-U.S.S. *Ptarmigan*, MSF 376)

Displacement: 890 tons standard (1,250 tons full load)
Dimensions: 215 (w.l.), 221 (o.a.)×32½×10½ (max.) feet
Guns: 2—3 inch, 50 cal. d.p. (single); 4—40 mm. AA. (2 twin); 4—20 mm. AA. (2 pairs)
Tubes: 3—21 inch (pyramided)
A/S weapons: 4 D.C.T. (single); 2 D.C. tracks
Machinery: 2 G.M. diesel electric. 2 shafts. B.H.P.: 3,532=18 kts.
Complement: 117 total accommodation

General

Former United States steel-hulled fleet minesweeper. Built by the Savannah Machinery & Foundry Co. Laid down on 9 Mar. 1944, launched on 15 July 1944 and completed on 15 Jan. 1945. Transferred from the U.S. to the Republic of Korea Navy on 25 July 1963 at Seattle, Washington. Employed as a patrol escort ship (PCE).

PATROL VESSELS



SOL AK

1964, Korean Navy, Official

4 Ex-U.S. "173 ft." Steel PC Type

KUM CHONG SAN PC 708 (ex-U.S.S. *Grosse Pointe*, PC 1546)
MYO HYANG SAN PC 706 (ex-PC 600)
O TAE SAN PC 707 (ex-U.S.S. *Winnemucca*, PC 1145)
SOL AK PC 709 (ex-U.S.S. *Chadron*, PC 564)

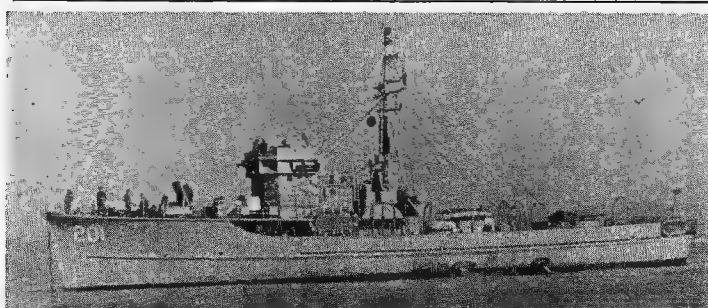
Displacement: 280 tons standard (450 tons full load)
Dimensions: 170 (w.l.), 173½ (o.a.)×23×10½ (max.) feet
Guns: 1—3 inch, 50 cal. d.p.; 1—40 mm. AA.; 4—20 mm. AA.
A/S weapons: 2 ASW rocket launchers, mousetrap
Machinery: Diesels. 2 shafts. B.H.P.: 2,880=20 kts.
Complement: 71

General

Former United States submarine chasers, PC, of steel construction built in 1941-42. *Kum Chong San* and *O Tae San* were transferred on loan at Seattle on 21 Nov. 1960 and 1 Nov. 1960, respectively. *Pak Tu San*, PC 701 (ex-*Ensign Whitehead*, ex-PC 823), *Kum Kang San*, PC 702 (ex-PC 810) and *Sam Kak San*, PC 703 (ex-PC 802) were decommissioned on 21 Aug. 1960 and scrapped. *Chirisan*, PC 704, was mined and sank off Wonson, Korea, on 26 Dec. 1951. *Han Ra San*, PC 705 (ex-U.S.S. PC 485) was sunk in a typhoon at Guam in Nov. 1962 and although raised was scrapped in 1964. *Sol Ak* (ex-U.S.S. *Chadron*) was transferred at Guam on 22 Jan. 1964.

A photograph of *Myo Hyang San* appears in the 1957-58 edition, and *Kum Chong San* in the 1963-64 edition.

Patrol Vessels—continued



SUSEONG 1962, Korean Navy, Official

2 Ex-U.S. "136ft." Wooden PCS Type

KUM SEONG PCS 202 (ex-PCS 1445) **HWA SEONG PCS 205** (ex-PCS 1448)
 Displacement: 251 tons standard (338 tons full load)
 Dimensions: 130 (w.l.), 136 (o.a.) \times 24 $\frac{1}{2}$ \times 8 $\frac{1}{2}$ feet
 Guns: 1—40 mm. 2—20 mm.
 Machinery: 2 General Motors diesels, 2 shafts. B.H.P.: 800=14 kts.

General

Former United States Submarine Chasers of the PCS type, of wooden construction, built in 1943-44. Acquired by Korea in 1952, *Kaesong PCS 504*, *Kiichu*, *PCS 514* (ex-YMS of same numbers) used as gunboats, were de-commissioned in 1955-56. *Suseong PCS 201* (ex-U.S.S. PCS 1426) was returned to the U.S. in Apr. 1963. *Mok Seong PCS 203* (ex-U.S.S. PCS 1446) was transferred to the Hydrographic Office of the Ministry of Transport in Jan. 1964.

COASTAL MINESWEEPERS



KUM KOK 1961, Korean Navy, Official

6 Ex-U.S. MSC Type

HA DONG MSC 527 (ex-MS-C 296) **KUM KOK MSC 525** (ex-MS-C 286)
KO HUNG MSC 523 (ex-MS-C 285) **KUM SAN MSC 522** (ex-MS-C 284)
NAM YANG MSC 526 (ex-MS-C 295)

Displacement: 320 tons standard (370 tons full load)
 Dimensions: 138 (pp.), 144 (o.a.) \times 28 \times 9 (max.) feet
 Guns: 2—20 mm. AA.
 Machinery: 2 diesels, 2 shafts, B.H.P.: 1,200=14 kts.
 Complement: 43

General

Coastal minesweepers, MSC of the United States "Bluebird" class specially built by the U.S.A. for foreign transfer under the Military Aid Program. *Ko Hung* and *Kum San* were transferred from the U.S. Navy to the Korean Navy in 1959, followed by *Kum Kok*, transferred at Long Beach, California, on 10 Nov. 1959. *Ha Dong* and *Nam Yang* were transferred to the Korean Navy at Boston, Mass. on 16 Nov. 1963 and 7 Oct. 1963, respectively. Both were built by Petersen Builders, Inc., Sturgeon Bay, Wisc. MSC 302 is building in U.S. for transfer to Korea under MAP.

Minesweeping Boat

MSB 2 was transferred from the U.S. Navy to the Korean Navy on 1 Dec. 1961.



KOCHANG 1959, Korean Navy, Official

5 Ex-U.S. YMS Type

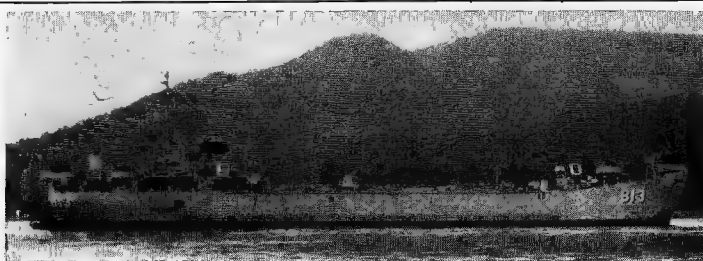
KUM HWA MSC(O) 519 (ex-U.S.S. Curlew, ex-MS-C(O) 8, ex-YMS 218)
KIM PO MSC(O) 520 (ex-U.S.S. Kite, ex-MS-C(O) 22, ex-AMS 22, ex-YMS 365)
KOCHANG MSC(O) 521 (ex-U.S.S. Mockingbird, ex-MS-C(O) 27, ex-YMS 419)
KWANG CHE MSC(O) 503 **KIM CHON MSC(O) 513**

Displacement: 270 tons standard (350 tons full load)
 Dimensions: 136 (o.a.) \times 24 $\frac{1}{2}$ \times 8 (max.) feet
 Guns: 1—40 mm., 50 cal., 2—20 mm. AA.
 Machinery: Diesels, B.H.P.: 1,000=15 kts.
 Complement: 50

General

Former United States auxiliary motor minesweepers of wooden construction, built in 1941-42. All ex-YMS type. *Kum Hwa*, *Kim Po* and *Kochang* were transferred from the U.S. Navy in 1956. *Kang Jin*, MSC(O) 501, *Kang Nung*, MSC(O) 507, and *Ka Ryang*, MSC(O) 515 were de-commissioned on 15 July 1959, 30 July 1959, and 30 May 1959, respectively. *Kyong Chu*, MSC(O) 502 was de-commissioned on 10 May 1962. *Kang Kyong* MSC(o). 510 was scrapped in 1964.

TANK LANDING SHIPS



SU YONG

1962, Korean Navy, Official

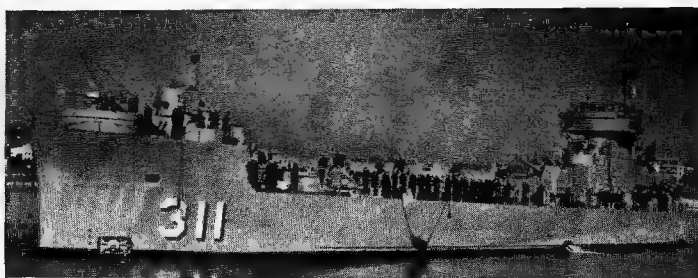
Ex-U.S. LST Type

UN BONG LST 807 (ex-U.S.S. LST 1010) **SU YONG LST 813** (ex-U.S.S. Kane County LST 853)
DUK BONG LST 808 (ex-LST 227) **BUK HAN LST 815** (ex-U.S.S. Lynn County LST 900)
BI BONG LST 809 (ex-U.S.S. LST 218) **HWA SAN LST 816** (ex-U.S.S. Pender County LST 1080)
KAE BONG LST 810 (ex-U.S.S. Berkshire County, LST 288)
WEE BONG LST 812 (ex-U.S.S. Johnson County LST 849)
 Displacement: 1,653 tons standard, 2,366 tons beaching (4,080 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.) \times 50 \times 14 (max.) feet
 Guns: 7—40 mm. AA., 6—20 mm. AA.
 Machinery: Diesel, 2 shafts. B.H.P.: 1,700=11 kts.
 Cargo capacity: 2,100 tons
 Complement: 113

General

Former United States Tank Landing Ships. *Duk Bong* and *Un Bong* were transferred on 22 Mar. 1955 at S. Diego. *Kae Bong* was transferred on 5 May 1956 at Seattle, one mounts 10—40 mm. guns and 8—20 mm. guns. *Buk Han*, *Su Yong* and *Wee Bong* were transferred on 2 Dec. 1958, 22 Dec. 1958 and 13 Jan. 1959, respectively, at Seattle, and *Hwa San* was transferred on 30 Oct. 1958 at Long Beach.

ROCKET LANDING SHIP



SI HUNG

1961, Korean Navy, Official

I Ex-U.S. LSMR Type

SI HUNG LSMR 311 (ex-U.S.S. St. Joseph River, LSMR 527)
 Displacement: 1,102 tons standard (1,280 tons full load)
 Dimensions: 203 $\frac{1}{2}$ (o.a.) \times 34 $\frac{1}{2}$ \times 8 $\frac{1}{2}$ (max.) feet
 Guns: 1—5 inch, 2—40 mm. AA., 2—20 mm. AA., 8—5-inch rocket projectors
 Machinery: Diesels, 2 shafts, B.H.P.: 2,800=13 kts.
 Complement: 142

General

Transferred to Republic of Korea Navy at San Diego, California, on 15 Sep. 1960. *Si Hung* means "The Beginning of Prosperity."

MEDIUM LANDING SHIPS



KU MOON

1963, Korean Navy, Official

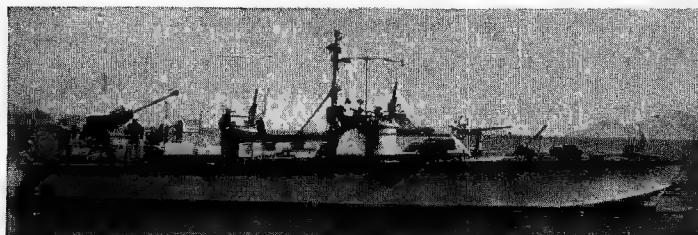
II Ex-U.S. LSM Type

BIYOUNG LSM 607 (ex-U.S.S. LSM 96) **PUNG DO LSM (F) 608** (ex-U.S.S. LSM 54)
KA DUK LSM 605 (ex-U.S.S. LSM 462) **TAE CHO LSM 601** (ex-U.S.S. LSM 546)
KI RIN LSM 610 (ex-U.S.S. LSM 19) **WOLMI LSM 609** (ex-U.S.S. LSM 57)
KU MOON LSM 606 (ex-U.S.S. LSM 30) **YEU DO LSM 602** (ex-U.S.S. LSM 268)
ULRYUNG LSM 613 (ex-U.S.S. LSM 17) **SIN-MI LSM 612** (ex-U.S.S. LSM 316)
NEUNG RA LSM 611 (ex-U.S.S. LSM 84)
 Displacement: 743 tons beaching (1,095 tons full load)
 Dimensions: 196 $\frac{1}{2}$ (w.l.), 203 $\frac{1}{2}$ (o.a.) \times 34 $\frac{1}{2}$ \times 8 $\frac{1}{2}$ (max.) feet
 Guns: 1—40 mm. AA., 4—20 mm. AA.
 Machinery: Diesels, direct drive, 2 shafts, B.H.P.: 2,880=12.5 kts.
 Complement: 62

General

On loan from the United States. LSM 19, 30, 54, 84 and 96 were transferred to the Korean Navy at Seattle in 1956. LSM 19, 84 transferred on 3 July 1956, LSM 17 on 18 Oct. 1956, LSM 316 on 18 Nov. 1956. *Pun Do*, (LSM(F) 608 has been converted into a Mine Force Flagship. *Dok Do*, LSM 603 (ex-U.S.S. LSM 419) was de-commissioned on 26 Feb. 1963.

Of the former United States Support Landing Ships Large, LSSL, ex-LCS(L) type, LSSL 107 (ex-LSSL 77) and LSSL 108 (ex-LSSL 91), employed as gunboats, were de-commissioned on 15 Nov. 1960. *Chung Jin*, LSSL 105 (ex-U.S.S. LSSL 1056) was scrapped in 1962, and *Po Song Man*, LSSL 109 (ex-U.S.S. LSSL 54) and *Yong Il Man*, LSSL 110 (ex-U.S.S. 86) were de-commissioned on 31 Oct. 1962.

MOTOR TORPEDO BOATS

JEBI

1959, Korean Navy, Official

2 Ex-U.S. PT Type

KALAMAEKI PT 23 (ex-PT 616) **KIROKI PT 25** (ex-PT 619)
 Displacement: 33 tons standard (56 tons full load)
 Dimensions: 80½×20½×5 feet
 Guns: 1—40 mm., 2—20 mm., 8 M.G.
 Tubes: 4 torpedo launching racks
 Machinery: Packard, 3 shafts. B.H.P.: 4,050=41 kts. (designed)
 Complement: 17

General

Former United States Navy motor torpedo boats of plywood hull construction built by the Electric Boat Co., Bayonne, N.J. in 1945. Transferred to the Republic of Korea Navy in Jan. 1952. Olpamel PT 26 (ex-U.S.S. PT 613) was destroyed in Sep. 1952 while on loan. Jebi PT 27 (ex-U.S.S. PT 620) was scrapped in 1964.

LANDING CRAFT REPAIR SHIP

DUK SOO

1963, Korean Navy, Official

DUK SOO (ex-U.S.S. Minotaur, ARL 15, ex-LST 645)
 Displacement: 2,366 tons standard (4,100 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.)×50×11½ feet
 Guns: 2—40 mm. AA.
 Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,800=11.5 kts.
 Complement: 277

General

Former United States landing craft repair ship. Built by Chicago Bridge & Iron Co., Seneca, Del. Laid down on 20 June 1944. Launched on 20 Sep. 1944. Completed on 30 Sep. 1944.

SUPPLY SHIPS

KIMHAE AKL 902 **WAEKWAN AKL 905** **AKL 35**
KUN SAN AKL 908 **MA SAN AKL 909** (ex-U.S.S. AKL 35)
 (ex-U.S.S. Sharps, AKL 10) **MOCK PO AKL 907** (ex-U.S.C.G.C. Trillium, WAK 170)
 Displacement: 520 tons
 Dimensions: 179 (o.a.)×32×10 (max.) feet
 Guns: 1—40 mm. AA., 2—20 mm. AA.
 Machinery: Diesel, 2 shafts. S.H.P.: 1,000=13 kts.
 Complement: 43 (for AKL 902) and 49 (for AKL 907, 908 and 909)

General

AKL 35 was transferred from the U.S.A. on 6 Sep. 1956, Kun San on 3 Apr. 1956, Ma San on 9 Sep. 1956, and Mock Po in 1956. Ex-U.S. Army F5 craft.

OILERS

CHUN-JI (ex-Birk) **AO 2** **PUJON** (ex-Hassel) **AO 3**
 Displacement: 1,400 tons standard (4,160 tons full load)
 Measurement: 2,257 and 2,256 tons gross respectively
 Dimensions: 275 (pp.)×44½×18½ feet
 Guns: 1—40 mm. AA., 2—20 mm. AA.
 Complement: 73

General

Former Norwegian tankers. Both built by A/S Berken Mek. Verks Bergen, Norway, in 1951. Taken over by Korean Navy at Rotterdam, Sep. and July 1953, respectively.

KU RYONG YO 1, ex-YO 106 (ex-U.S.S. YO 118)
 Displacement: 428 tons standard (1,126 tons full load)
 Dimensions: 174 (o.a.)×33×13 (max.) feet
 Machinery: Union diesel, 1 shaft. S.N.P.: 500=7 kts.
 Complement: 36

General

Former U.S. self-propelled fuel oil barge. Transferred to Korea on 3 Dec. 1946.

HWA CHON YO 5 (ex-Paek Yeon, AO 5, ex-U.S.S. Derrick, YO 59)
 Displacement: 893 tons standard (2,700 tons full load)
 Dimensions: 236 (o.a.)×38×15 (max.) feet
 Guns: 3—20 mm. AA.
 Machinery: Fairbanks-Morse diesel, 1 shaft. B.H.P.: 1,150=10.5 kts.
 Complement: 46

General

Former self-propelled fuel oil barge. Loaned to Korea on 14 Oct. 1955.

TUGS

DO BONG ATA 3 (ex-U.S.S. Pinola, ATA 206)
YONG MUN ATA 2 (ex-U.S.S. Keosauqua, ATA 198)
 Displacement: 538 tons standard (838 tons full load)
 Dimensions: 134½ (w.l.), 143 (o.a.)×34×13½ (max.) feet
 Machinery: G.M. diesel-electric, 1 shaft. H.P.: 1,500=13.5 kts.

General

Former United States auxiliary ocean tugs of the "Maricopa" class, ATA type. Built by Gulfport Boiler and Welding Works, Inc., Port Arthur, Texas (Do Bong) and Livingston Shipbuilding Co., Orange, in 1944-45. Transferred on 2 Jan. 1962.

KOREA (NORTH)**Personnel**

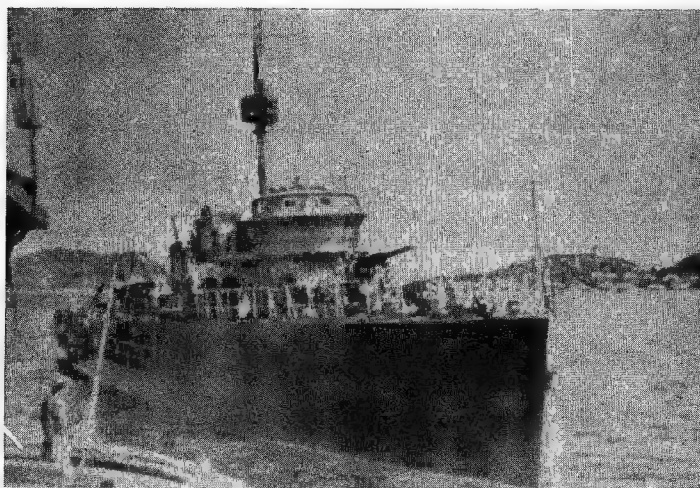
Estimated at 9,020 total (820 officers and 8,200 men in June 1965.)

MINESWEEPERS**2 Ex-U.S.S.R. "T" Type**

Displacement: 540 tons
 Dimensions: 200 (o.a.)×23×8 feet

General

Fleet minesweepers of the "T" class received by the North Korean Navy from the U.S.S.R.



"Fugas" Class

Added 1964, Ziro Kimata

8 Ex-U.S.S.R. "Fugas" Type

Displacement: 440 tons standard (550 tons full load)
 Dimensions: 203½ (o.a.)×23½×8 feet
 Guns: 1—3.9 inch; 1—37 mm. AA.
 Machinery: Diesels, 2 shafts. B.H.P.: 2,800=18 kts.

General

Former Soviet minesweepers of the "Fugas" class built in 1935-42. Fitted for minelaying.

SUBMARINE CHASERS**2 Ex-U.S.S.R. "Artilerist" Type**

Displacement: 240 tons standard (280 tons full load)
 Dimensions: 160½×19×6½ feet
 Guns: 1—3.9 inch, 2—37 mm. AA.
 A/S weapons: 2 depth charge throwers
 Machinery: Diesels, 2 shafts. B.H.P.: 3,300=22 kts.

General

Former Soviet patrol vessels or coastal escorts of the "Artilerist" class rated as submarine chasers. Built in 1943.

2 New Construction

Displacement: circa 160 tons
 Dimensions: Length: 125 feet

General

Two fast submarine chasers of medium size are reported to be under construction for the North Korean Navy.

10 Patrol Type

Displacement: circa 130 tons
 Dimensions: Length: 100 feet

General

Small craft of the patrol type for seaward defence and local duties, rated as submarine chasers.

3 Ex-U.S.S.R. "MO I" Type

Displacement: 50 tons
 Dimensions: 85½×13×4½ feet
 Guns: 2—13 mm. AA. M.G.
 Machinery: 2 petrol engines, 2 shafts. B.H.P.: 1,300

General

Former Soviet motor launches transferred by the U.S.S.R. in 1954. Rated as submarine chasers.

MOTOR TORPEDO BOATS**21 Ex-U.S.S.R. "P 4" Type**

Displacement: 50 tons
 Dimensions: 85½×20×6 feet
 Guns: 4—25 mm. AA.
 Machinery: Diesels, B.H.P.: 2,000=42 kts.

General

Former Soviet motor torpedo boats of the "P 4" class. Built in 1951-57. Aluminium hulls.

MINESWEEPING BOATS**20 Inshore Type**

Displacement: 20 tons
 Dimensions: Length: 50 feet

General

Very small minesweeping craft for inshore, coastal, estuarial and general utility.

LEBANON

PATROL BOATS

TARABLOUS
Displacement: 105 tons standard
Dimensions: 124½×18×5½ feet
Guns: 2—40 mm.
Machinery: 2 Mercedes-Benz diesels. 2 shafts. B.H.P.: 2,700=27 kts.
Radius: 1,500 miles
Complement: 19 (3 officers, 16 men)
Construction
Tarablous was built by Ch. Navals de l'Estérel. Laid down in June 1958. Launched in June 1959. Completed in 1959.



BIBLOS 1960, Captain Aldo Fraccaroli
3 "Biblos" Class
BIBLOS Displacement: 28 tons standard
Dimensions: 66×13½×4 feet
Guns: 1—20 mm. AA., 2 M.G.
Machinery: General Motors diesels. 2 shafts. B.H.P.: 530=18.5 kts.
Construction
French built ML type craft. Built by Ch. Navals de l'Estérel. Launched in 1954-55.

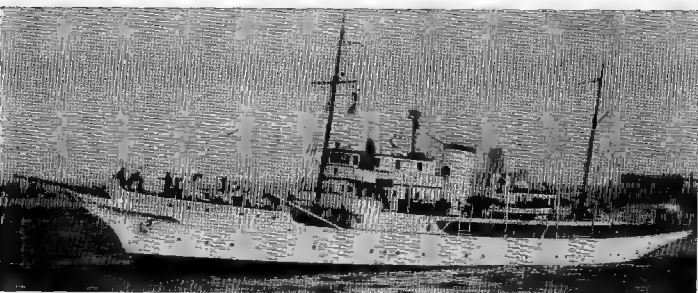
LANDING CRAFT

Ex-LCU 1474
Displacement: 180 tons standard (360 tons full load)
Dimensions: 115×34×6 feet
Guns: 2—20 mm. AA.
Machinery: 3 diesels. 3 shafts. B.H.P.: 675=10 kts.
General
Former United States utility landing craft built in 1957, transferred in Nov. 1958.

LIBERIA

The small naval service or coast guard has about 200 officers and men.
Mercantile Marine
Lloyd's Register of Shipping: 1,117 vessels of 14,549,645 tons gross.

PRESIDENTIAL YACHT



LIBERIAN 1964, Official
LIBERIAN (ex-Virginia)
Measurement: 742 tons (Thames), 692.27 tons gross, 341.6 tons net.
Dimensions: 173 (w.l.), 209 (o.a.)×29½×13½ feet
General
Motor yacht of 742 tons (yacht measurement) built in 1930 by William Beardmore & Co. Ltd., Dalmuir. Purchased by Liberia for use as the Presidential yacht in 1957. (Her previous owners were the Trustees of the Estate of the late Viscount Camrose.) Extensively refitted by Cammell Laird & Co. Ltd., Birkenhead, at the end of 1962.

PATROL BOATS (Coastguard Cutters)



ML 4002 1957, Giorgio Arca
ML 4001 Displacement: 11.5 tons
Dimensions: 40½ (o.a.)×11½×3½ feet
Guns: 2 M.G.
Machinery: 2 G.M. diesels. 2 shafts. B.H.P.: 380=23 (max.) kts.
General
Coastguard cutters built at the United States Coast Guard Yard, Curtis Bay, Maryland, presented by the U.S.A., and transferred during 1957.

LIBERIA—(continued)

MOTOR GUNBOAT

PGM 69
Displacement: 100 tons
Dimensions: 95 (o.a.)×19×5 feet
Guns: 1—40 mm. AA.
Machinery: 4 diesels. 2 shafts. B.H.P.: 2,200=21 kts.
Complement: 15
Construction
Being built in the United States for transfer under the Military Aid Programme.

LIBYA

The Royal Libyan Navy was established in Nov. 1962 when a British Naval Mission was formed and first recruits were trained at H.M.S. St. Angelo, Malta. Cadets are being trained at the Britannia Royal Naval College, Dartmouth, and technical ratings at H.M.S. Sultan, Gosport, and H.M.S. Collingwood, Fareham, England.
Head of the Armed Forces of Libya: General Nuri es Sadik
Head of the British Naval Mission: Captain W. J. Woolley, R.N. (relieving Captain D. R. Williams, M.B.E., R.N.)

CORVETTE



TOBRUK 1964, courtesy Vosper Ltd., Builders
1 New Construction
TOBRUK Displacement: 440 tons
Dimensions: 160 (pp.), 177 (o.a.)×28½×13 feet
Guns: 1—4 inch, 4—40 mm. AA. (single)
Machinery: 2 Paxman Ventura 16 YJCM diesels. 2 shafts. B.H.P.: 3,800=18 kts.
Radius: 2,900 miles at 14 kts.
General
Designed and built by Vosper Limited, Portsmouth. Launched on 29 July 1965. A gun corvette fitted with surface warning radar, Vosper roll damping fins and air-conditioning.

INSHORE MINESWEEPERS



GREETHAM 1965, A. & J. Pavla



HARPHAM 1965, A. & J. Pavla

2 British "Ham" Type
Ex-H.M.S. GREETHAM Displacement: 120 tons standard (159 tons full load)
Dimensions: 100 (pp.), 106 (o.a.)×21½×5½ feet
Guns: 1—20 mm. AA.
Machinery: 2 Paxman diesels. B.H.P.: 1,100=14 kts.
Complement: 15 to 22
Ex-H.M.S. HARPHAM
General
Lent by Great Britain in 1963 to form the nucleus of a navy for Libya. (There are also three fast patrol launches for customs and fishery protection, see full particulars in the 1963-64 and 1964-65 editions).

LAOS

It is reported there are four river squadrons of small gunboats and landing craft.

Chief of the Naval Staff:
Commodore Allen Nelson Dollard, D.S.C.,
R.A.N.
Military Adviser in London:
Colonel Mohamed Noor, K.M.N., M.B.E.

MALAYSIA

The names of Malaysian warships are prefixed
by K.D. (Kapal Diraja)=Royal Ship

Mercantile Marine

Lloyd's Register of Shipping:
131 vessels of 100,146 tons gross

FRIGATE

1 Ex-British "Loch" Class

HANG TUAH (ex-H.M.S. Loch Insh)

Pennant No.: F 433
Builders: Henry Robb Ltd., Leith
Laid down: 17 Nov. 1943
Launched: 10 May 1944
Completed: 20 Oct. 1944
Displacement: 1,575 tons standard (2,400 tons full load)
Dimensions: 286 (pp.), 297½ (w.l.), 307 (o.a.)×38½×14½ (max.) feet
Guns: 2—4 inch; 8—40 mm. Bofors AA.
A/S weapons: 2 Squid triple-barrelled depth charge mortars
Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=19.5 kts.
Boilers: 2 Admiralty 3-drum type
Radius: 9,500 miles at 12 kts.
Complement: 140



HANG TUAH

1964, Wright & Logan

General

Former British Frigate of the "Loch" class (Anti-Submarine Type). On transfer to the Royal Malaysian Navy she was refitted with a helicopter landing deck,

air-conditioned throughout, modern radar, and extra accommodation, in H.M. Dockyard, Portsmouth, from whence she sailed for Singapore on 12 Nov. 1964.

Nomenclature

Hang Tuah is the name of a Malay Admiral and warrior in the 15th century.

COASTAL MINESWEEPERS

INSHORE MINESWEEPERS



LEDANG

1964, courtesy Mr. Michael D. J. Lannon.

SRI PERLIS (sweeping gear aft, gun forward) 1962, Royal Malaysian Navy, Official
4 Ex-British "Ham" Class

JERAI

1964, Wright & Logan

4 Ex-British "Ton" Class

JERAI (ex-H.M.S. Dilston)
KINABALU (ex-H.M.S. Essington)

LEDANG (ex-H.M.S. Hexton)
MAHAMIRU (ex-H.M.S. Darlaston)

Displacement: 360 tons standard (425 tons full load)
Dimensions: 140 (pp.), 152 (o.a.)×28½×8½ feet
Guns: 1—40 mm. Bofors AA, forward; 2—20 mm. AA, aft.
Machinery: Diesels, 2 shafts. B.H.P.: 2,500=15 kts. (max.)
Oil fuel: 45 tons
Complement: 39

General

Coastal minesweepers of the "Ton" class. Mahamiru was transferred from the Royal Navy in 1960 under the Defence Agreement. Ledang was refitted at H.M. Dockyard, Chatham before transfer, and was commissioned and sailed for Malaysia in Oct. 1963. Jerai and Kinabalu were refitted in Great Britain and arrived in Malaysia in summer 1964.



MAHAMIRU

1961, Royal Malaysian Navy, Official

LANGKA SUKA (ex-H.M.S. Bedham) SRI PERLIS (ex-H.M.S. Asheldham)
SRI JOHOR (ex-H.M.S. Altham) TEMASEK (ex-H.M.S. Brantingham)

Displacement: 120 tons standard (159 tons full load)
Dimensions: 100 (pp.), 106½ (o.a.)×21½×5½ feet
Guns: 1—40 mm. Bofors AA, forward; 2—20 mm. Oerlikon AA, aft (see Gunnery notes)
Machinery: 2 Paxman diesels, B.H.P.: 1,100=14 kts. (max.)
Oil fuel: 15 tons
Complement: 22

General

"Ham" class, M 2601 Series. Transferred from Great Britain and renamed in 1958 (Langka Suka and Temasek) and 1959 (Sri Johar and Sri Perlis).

As a temporary measure all have been armed with one 40 mm. AA, gun forward and two single 20 mm. AA, guns aft instead of sweeping gear.

A photograph of Temasek (with sweeping gear) appears in the 1961-62 to 1964-65 editions.



SRI JOHOR (guns instead of sweeping gear) 1961, Royal Malaysian Navy, Official

MOTOR TORPEDO BOATS

4 New Construction

GEMPITA	HANDALAN	PENDEKAR	PERKASA
Displacement:	95 tons standard (114 tons full load)		
Dimensions:	90 (pp.), 96 (w.l.), 99 (o.a.)×25½×7 feet		
Guns:	2—40 mm. Bofors AA.		
Tubes:	4—21 inch (side)		
Machinery:	3 Bristol Siddeley Proteus gas turbines, 3 shafts. B.H.P.: 12,750=54 kts. G.M. diesels on wing shafts for cruising=10. kts.		

Construction

The design is a combination of the "Brave" class hull form and "Ferocity" type construction. Ordered from Vosper Limited, Portsmouth, England, on 22 Oct. 1964. They will be generally similar to the motor torpedo boats built by Vosper for the Royal Danish Navy. They could also operate in the gunboat role or a minelaying role. To be delivered in early 1966.

PATROL CRAFT



SRI PAHANG

1964, courtesy Mr. Michael D. J. Lennon



SRI PERAK

1964, Wright & Logan



SRI KEDAH

1963, courtesy Vosper Ltd., Portsmouth, Builders

SRI KEDAH P 3138
SRI KELANTAN P 3142

6 "Sri Kedah" Class

SRI PAHANG P 3141
SRI PERAK P 3140
SRI SELANGOR P 3139
SRI TRENGGANU P 3143

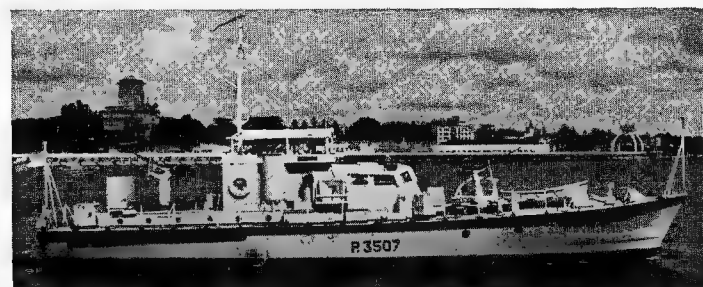
4+14 "Sri Sabah" Class

SRI MELAKA P 3147
SRI NEGRI SEBILAN P 3146SRI SABAH P 3144
SRI SARAWAK P 3145

Displacement: 96 tons standard (109 tons full load)
 Dimensions: 95 (w.l.), 103 (o.a.) \times 19 $\frac{1}{2}$ \times 5 $\frac{1}{2}$ feet
 Guns: 2—40 mm., 70 cal. Bofors AA.
 Machinery: 2 Bristol Siddeley Maybach MD 655/18 diesels, B.H.P.: 3,500—27 kts. (max.)
 Radius: 1,400 (Sri Sabah class 1,660) miles at 14 kts.
 Complement: 22 (3 officers, 19 ratings)

General

The contract between Vosper Ltd., Portsmouth, and the Malaysian Government for six boats, the "Sri Kedah" class, was announced on 14 Sep. 1961. The first Sri Kedah, was launched on 4 June 1962 and commissioned on 6 Feb. 1963. Sri Selangor was launched on 17 July 1962. Sri Trengganu on 12 Dec. 1962 and Sri Kelantan on 8 Jan. 1963. All were in service with the Royal Malaysian Navy by the end of 1963. Of prefabricated steel construction, they are fitted with Vosper roll damping fins and are equipped with Decca true motion radar. Four additional craft of improved design, the "Sri Sabah" class, were ordered in 1963. Sri Sabah was launched on 30 Dec. 1963. Sri Sarawak on 20 Jan. 1964. Sri Negri Sembilan on 17 Feb. 1964 and Sri Melaka on 25 Feb. 1964. All arrived in Malaysia by Jan. 1965. Fourteen more of the "Sri Sabah" class were ordered from Vosper in July 1965.



SDML 3507

1960, Royal Malaysian Navy, Official

3 Ex-British SDML Type

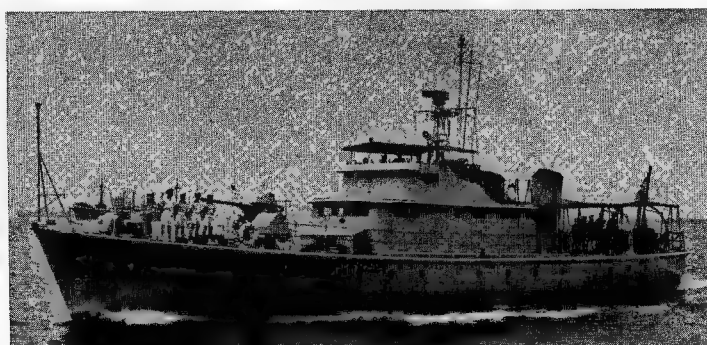
SDML 3502 (ex-Sri Trengganu, ex-SDML 3502) Service
SDML 3506 (ex-Sri Negri Sembilan, ex-SDML 3506) Reserve Training
SDML 3507 (ex-Sri Perak, ex-SDML 3507) Service

Displacement: 46 tons standard (54 tons full load)
 Dimensions: 72 (o.a.) \times 16 \times 5 $\frac{1}{2}$ feet
 Guns: 2—20 mm. Oerlikon AA.
 Machinery: 2 Gardner diesels, 2 shafts, B.H.P.: 320=12 kts.

General

Former British harbour defence motor launches (HDML) later known as seaward defence motor launches (SDML). Of the original seven craft of this type Sri Kedah (ex-SDML 3501) was paid off in 1959 and scrapped and Sri Selangor (ex-SDML 1509) in 1961. These motor launches all reverted to their numbers in turn as the new patrol craft (see above) took their names. It was officially stated in 1965 that SDML 3505 (ex-Sri Pahang, ex-SDML 3505) and SDML 3508 (ex-Sri Kelantan, ex-SDML 3508) have been scrapped but that SDML 3502 and SDML 3507 were still in service and SDML 3506 in reserve as a training tender.

TRAINING TENDER



PANGLIMA

1964, Royal Malaysian Navy, Official

PANGLIMA P 48

I Singapore Type

Displacement: 119 tons standard (131 tons full load)
 Dimensions: 117 (o.a.) \times 20 \times 6 feet
 Guns: 1—40 mm. 60 cal. Bofors forward
 Machinery: Paxman YHAXM, supercharged B 12 engines. Speed=14.6 kts. (max.)
 Oil fuel: 15 tons
 Complement: 15 (as necessary for training)

General

Built by United Engineers, Singapore. Laid down in 1954. Launched on 14 Jan. 1956. Accepted by the Singapore Government in May 1956. Transferred to the Royal Malaysian Navy on the formation of Malaysia. Normally employed as Reserve Training Tender for RMNVR but in 1965 was in full commission with the RMN. Her dimensions and layout are reminiscent of those of the British seaward defence boats of the "Ford" class.

DESPATCH AND SURVEY VESSEL



MUTIARA

1962, Royal Malaysian Navy, Official

MUTIARA P 3504

I Thornycroft Type

Displacement: 95 tons
 Dimensions: 98 (o.a.) \times 19 \times 5 $\frac{1}{2}$ feet
 Guns: 1—20 mm. Oerlikon AA.
 Machinery: 2 Thornycroft diesels, B.H.P.: 200=12 kts.
 Complement: 16 (2 officers and 14 ratings)

General

A general purpose vessel intended for despatch, surveying and patrol duties. Designed and built at the Singapore shipyard of John I. Thornycroft & Co., Ltd. First vessel specially constructed for the Royal Malaysian Navy, the earlier ships having been acquired from the Royal Navy. Launched on 17 Jan. 1961. Named on 20 May 1961 and commissioned as K.D. Mutiara (meaning Pearl).

TANK LANDING CRAFT



SRI LANGKAWI

Added 1965, A. & J. Pavla

I Ex-British LCT (8) Type

SRI LANGKAWI (ex-H.M.S. Counterguard, ex-LCT (8) 4043)

Displacement: 657 tons light (1,000 tons loaded)
 Dimensions: 225 (pp.), 231 $\frac{1}{2}$ (o.a.) \times 39 \times 3 $\frac{1}{2}$ (fore), 5 (aft) feet
 Machinery: 4 Paxman engines. B.H.P.: 1,840=12.6 kts.
 Complement: 37

General

Former British tank landing craft of the LCT (8) type. Acquired by the Royal Malaysian Navy in 1965 and refitted in Malta for tropical service.

Minor Landing Craft

Four LCM (6), displacement 55 $\frac{1}{2}$ tons, dimensions 56 feet overall, machinery 2 diesels B.H.P. 460=9 kts., are being built in Australia and are expected in service in 1965. Two Oerlikon guns are being fitted.

Fourteen LCP, displacement 18 $\frac{1}{2}$ tons, dimensions 48 feet overall, 14 feet beam, machinery 2 Cummins B.H.P. 400=16 kts. are being built to an Australian design and are expected to be in service in 1965. One Oerlikon can be fitted if required.

Disposals

The landing craft Sri Perils (ex-H.M.S. Pelandok, ex-LGC(L) 450), and the trawler type controlled minelayer Sri Johor (ex-H.M.S. Penyau, ex-H.M.S. Dabchick, ex-Thorney, were paid off in 1959 and sold. The maintenance repair craft MRC 1401 (ex-Sri Melaka, ex-H.M.M.S. Malaya, ex-MRC 1401, ex-LCT (E)341) was disposed of in 1965.

MEXICO

Administration

Secretary of the Navy:
Admiral Antonio Vazquez del Mercado.

Under-Secretary of the Navy:
Vice-Admiral Oliverio F. Orfoxco Vela

Chief of Operations:
Vice-Admiral Rigoberto Otaí Brisenó.

Commander-in-Chief of the Fleet:
Vice-Admiral Jorge Lang Islas.

Chief of the Naval Staff:
Vice-Admiral Antonio J. Aznar Zetina.

Director of Services:
Rear-Admiral Enrique Carrera Alomia.

Deputy Chief of Naval Staff:
Rear-Admiral Guillermo Hernandez Sagarra.

The Navy is under the administration of the Secretariat of Marine which controls all national activities related with the sea.

Personnel
1965: Total 11,000 (2,200 officers and 8,800 men, including marines).

Mercantile Marine
Lloyd's Register of Shipping:
86 vessels of 265,461 tons gross

FRIGATES

4 Ex-U.S. "Rudderow" Class
Rated as *Fragatas Transportes*

Displacement: 1,400 tons standard (2,130 tons full load)

Dimensions: 300 (w.l.), 306 (o.a.)×37×12½ feet

Guns: 1—5 inch, 38 cal. d.p.; 6—40 mm. AA. (3 twin); 6—20 mm. G.E. turbo-electric, 2 shafts. S.H.P.: 12,000=23.6 kts.

Machinery: 2 "D" Express

Boilers: 350 tons

Oil fuel: 5,500 miles at 15 kts.

Radius: 204 plus 162 troops

Complement:

General
Former United States destroyer escorts of the "Rudderow" class converted and rated as high speed transports (APD) in the U.S. Navy. Purchased by Mexico in May and June 1964. They replaced the four frigates of the ex-U.S. "Tacoma" type, bearing the same names, which were stricken for disposal in June and Aug. 1964.



PAPALOPAN

1965, Mexican Navy, Official

Name	Pennant	Builders	Laid down	Launched	Completed
CALIFORNIA (ex-U.S.S. Belet, APD 109, ex-DE 599)	B 3 (ex-H 3)	Bethlehem S.B. Co., Hingham, Mass.	26 June 1944	3 Mar. 1944	15 June 1945
PAPALOAPAN (ex-U.S.S. Earhart, APD 113, ex-DE 603)	B 4 (ex-H 4)	Bethlehem S.B. Co., Hingham, Mass.	20 Mar. 1945	12 May 1945	26 July 1945
TEHUANTEPEC (ex-U.S.S. Joseph M. Auman, APD 117, ex-DE 74)	B 5 (ex-H 5)	Consolidated Steel Co., Orange, Texas	8 Nov. 1943	5 Feb. 1944	25 Apr. 1945
USUMACINTA (ex-U.S.S. Don O. Woods, APD 118, ex-DE 721)	B 6 (ex-H 6)	Consolidated Steel Co., Orange, Texas	1 Dec. 1943	19 Feb. 1944	28 May 1945

1 "Durango" Type
Rated as *Transporte de Guerra*

DURANGO

Pennant No.: B-1 (ex-128)

Builders: Union Naval de Levante

Launched: 28 June 1935

Completed: 1936

Displacement: 1,600 tons standard (2,000 tons full load)

Dimensions: 282 (pp.), 303 (o.a.)×40×10 feet

Guns: 2—4 inch, 2—57 mm., 2—25 mm. AA. (twin) 4—20 mm.

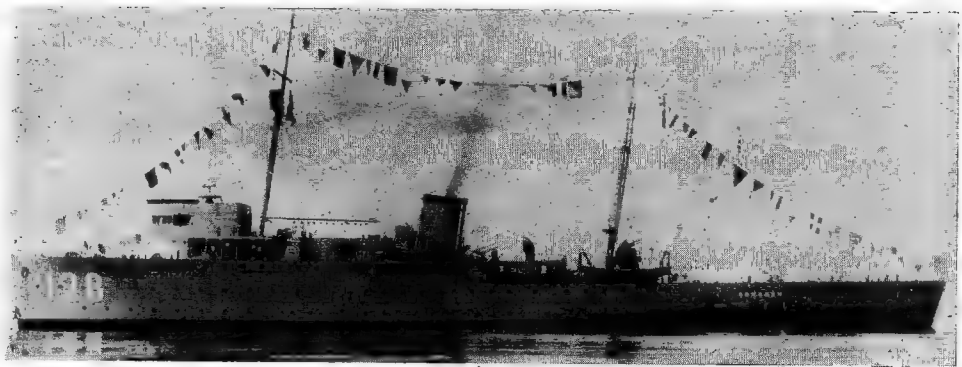
Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 6,500=20 kts. designed (19 kts. sea speed)

Boilers: 2 Yarrow

Oil fuel: 400 tons

Radius: 3,000 miles at 15 kts.

Complement: 140



DURANGO

1963, Official

General
Designed primarily as an armed transport with accommodation for 20 officers, 450 men and 80 horses. Carries a lighter armament than the three cañoneros of the "Guanajuato" class (see below) which besides their troop carrying and transport capacity are equivalent to frigates in many ways. Durango replaced Zaragoza as a Training ship in Mar. 1964.

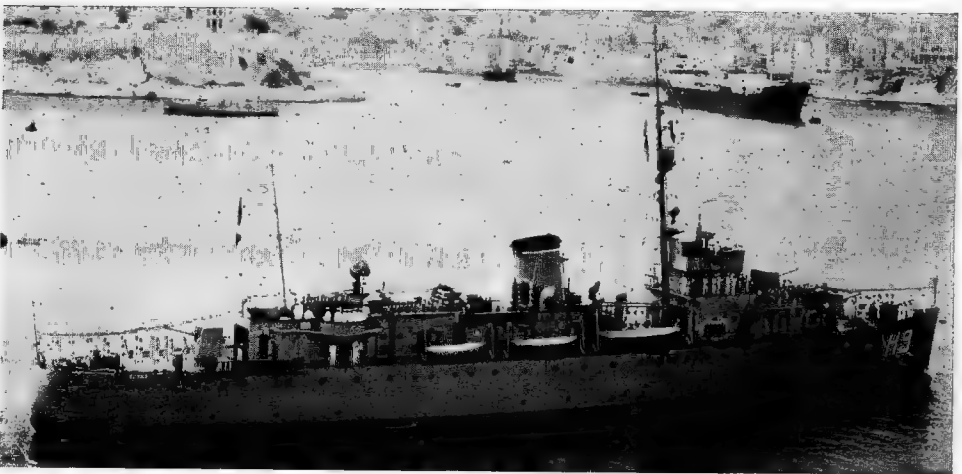
3 "Guanajuato" Class

Rated as *Cañoneros* (Gunboats)

GUANAJUATO	POTOSI	QUERETARO
Displacement:	1,300 tons standard (1,950 tons full load)	
Dimensions:	264 (o.a.)×37½×10 feet	
Guns:	3—4 inch, 6—20 mm. AA. (single)	
Machinery:	2 Enterprise DMR—38 diesels. 2 shafts. B.H.P.: 5,000=14 kts. cruising speed (see General)	
Oil fuel:	140 tons	
Complement:	140 plus 120 troops in berths	

General
Classed as cañoneros. The Parsons geared turbines (2 shafts, S.H.P.: 5,000=19 kts.) and Yarrow boilers installed when originally built in 1934 were replaced with two diesels each of 2,500 B.H.P.: Querétaro in 1958, Potosí in 1961, and Guanajuato in 1964. Former pennant numbers: Querétaro H 9 (ex-43); Potosí H 8 (ex-44).

Photographs
A photograph of Potosí appears in the 1963-64 edition.

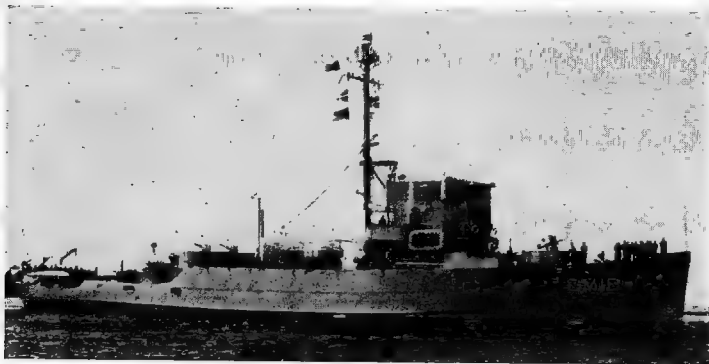


QUERETARO

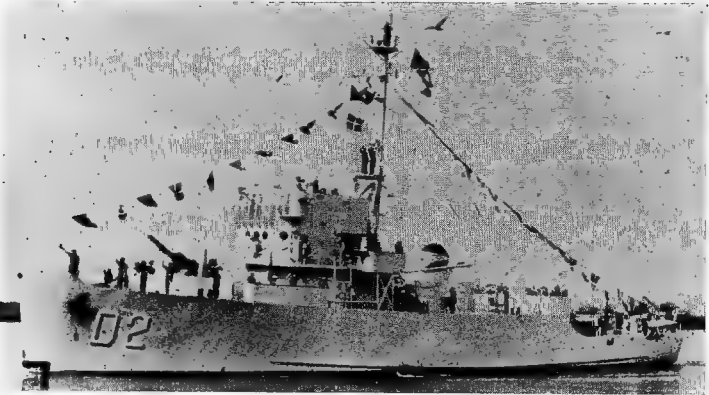
1964. A. & J. Pavia

Name	Pennant	Builders	Launched
Guanajuato	C-7	Sociedad Español de Construction Naval, Ferrol	29 May 1934
Potosí	C-9	Sociedad Español de Construction Naval, Matagorda, Cadiz	24 Aug. 1934
Querétaro	C-8	Sociedad Español de Construction Naval, Ferrol	29 June 1934

ESCORT VESSELS



DM 19 1964, Official



DM 02 1964, Official

20 Ex-U.S. MSF Type (Rated as Dragaminas)

Pennant	Ex-U.S. Name & No.	Name	Pennant	Ex-U.S. Name & No.	
DM-01	D-1 Jubilant	255	DM-11	E-1 Device	220
DM-02	D-2 Hilarity	241	DM-12	E-2 Ransom	283
DM-03	D-3 Execute	232	DM-13	E-3 Knave	256
DM-04	D-4 Facility	233	DM-14	E-4 Rebel	284
DM-05	D-5 Scuffle	298	DM-15	E-5 Crag	214
DM-06	D-6 Eager	224	DM-16	E-6 Dour	223
DM-07	D-7 Recruit	285	DM-17	E-7 Diploma	221
DM-08	D-8 Success	310	DM-18	E-8 Invade	254
DM-09	D-9 Scout	296	DM-19	E-9 Intrigue	253
DM-10	D-0 Instill	252	DM-20	E-0 Harlequin	365

Displacement: 650 tons standard (945 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.)×33×10 feet
Guns: 1—3 inch, 50 cal d.p.; 4—40 mm. AA.
Machinery: 2 diesels. 2 shafts. B.H.P.: 1,710=15 kts.
Complement: 104

General
Former United States steel-hulled "180-ft." fleet minesweepers of the "Admirable" class, MSF, ex-AM type. All completed in 1943-44. Transferred by the U.S.A. to Mexico, being received at Orange, Texas, on 2 Oct. 1962. Of the twenty vessels ten are designated dragaminas for minesweeping duties, with D pennant numbers, and ten are designated escoltas for escort and general purpose duties with E pennant numbers.



BLAS GODINEZ 1965, Mexican Navy, Official

5 Ex-U.S. PCE Type (Rated as Corbetas)

BLAS GODINEZ (ex-PCE 871) C 2 THOMAS MARIN (ex-PCE 875) C 3
DAVID PORTER (ex-PCE 847) C 4 VIRGILIO URIBE (ex-PCE 868) C 5
PEDRO SAINZ DE BARANDA (ex-PCE 844) C 1

Displacement: 600 tons standard (903 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.)×33½×9½ feet
Guns: 1—3 inch, 50 cal., 6—40 mm. AA. (3 twin), 4—20 mm. AA. (single)
A/S weapons: 2 D.C.T.
Machinery: G.M. diesel. 2 shafts. B.H.P.: 1,800=16 kts. designed (15 kts. sea speed)
Complement: 80

General
Former United States escort patrol vessels of the PCE type. All completed in 1943-44. Purchased from the United States Navy in 1947. A photograph of Tomás Marin appears in the 1949-50 edition, and of Pedro Sainz de Baranda in the 1950-51 to 1961-62 editions.

PATROL VESSELS



GC 35 1964, Official

5 Ex-U.S. PC Type (Rated as Guardacostas)

GC 30 (ex-U.S.S. PC 820) G 0 GC 35 (ex-U.S.S. PC 824) G 5
GC 33 (ex-U.S.S. PC 813) G 3 GC 37 (ex-U.S.S. PC 819) G 7
GC 38 (ex-U.S.S. PC 1210) G 8

Displacement: 280 tons standard (450 tons full load)
Dimensions: 170 (w.l.), 173½ (o.a.)×23×11 feet
Guns: 1—3 inch, 2—20 mm. AA.
A/S weapons: 4 D.C.T.
Machinery: 2 diesels. 2 shafts. B.H.P.: 2,880=19 kts.
Oil fuel: 60 tons
Radius: 5,000 miles at 10 kts.
Complement: 65

General
Former United States submarine chasers of the "173-ft" steel PC type. Launched in 1942-44. Completed in U.S. in 1942-45. Purchased as surplus in the United States in 1952. Cruising speed 10 kts. A photograph of GC 30 appears in the 1953-54 to 1963-64 editions.

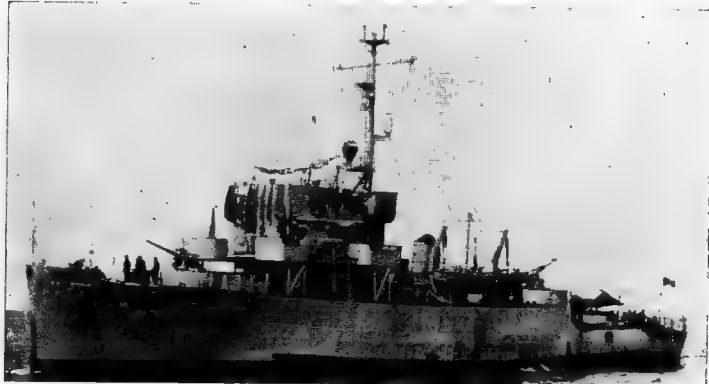
Disposals
Of this class GC 31 (ex-U.S.S. PC 820), GC 32 (ex-U.S.S. PC 608), GC 34 (ex-U.S.S. PC 794) and GC 36 (ex-U.S.S. PC 1224) were officially deleted from the list in Mar. 1964 for scrapping.



G 28 1964, Curtis E. Villas

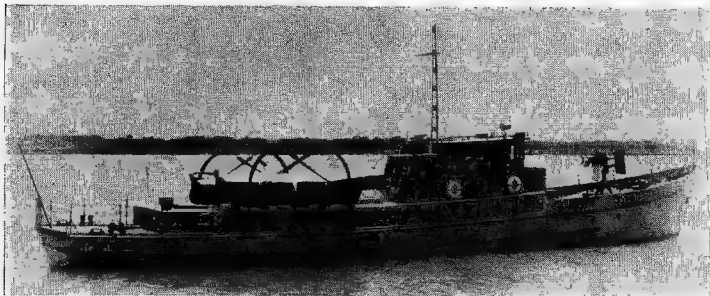
Displacement: 130 tons standard (184 tons full load)
Dimensions: 147½ (pp.), 153 (w.l.), 156 (o.a.)×16½×5½ feet
Guns: 2—20 mm. AA.
A/S weapons: 2 D.C.T.
Machinery: 2 G.M. diesels. 2 shafts. B.H.P.: 1,000=12 kts.
Complement: 26

General
Built in 1934-35. Though of British design, this sole survivor of the "G 20" class, was built in Spain, by Compania Euskalduna de Construcción, Bilbao, with German engines and was originally armed with French guns. In 1960 the former MAN diesels of 3,000 B.H.P.=24 kts. were replaced by G.M. diesels. G 21, G 23, G 26 and G 27 were withdrawn from service in 1954 and G 22 and G 25 in 1956. G 28 is being withdrawn from service and will be scrapped.



DAVID PORTER (see bottom of Col. 1) 1962, Official

PATROL BOATS



AZUETA

1964, Official

2 "Azueta" Class

AZUETA G 9	VILLAPANDO G 6
Displacement:	80 tons standard
Dimensions:	85×16×7 feet
Guns:	2—13.2 mm. AA. (twin)
Machinery:	Superior motors. B.H.P.: 600=12 kts.

General
Small patrol craft of all steel construction built at Astilleros de Tampico in 1959 and 1960, respectively.

1 "Polimar" Type

POLIMAR (Pennant No. G 1)	
Displacement:	57 tons <i>standard</i>
Dimensions:	67 feet
Machinery:	2 diesels, B.H.P.: 456=16 kts.

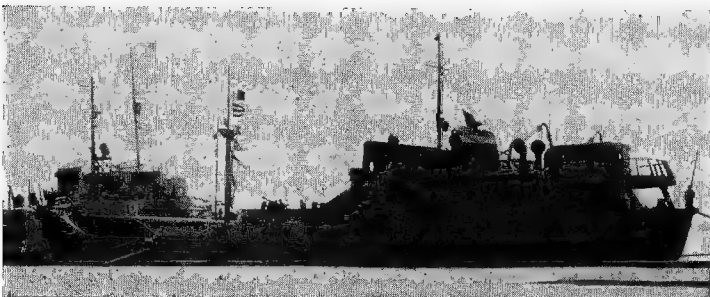
General
Small patrol craft of steel construction built at Astilleros de Tampico in 1961. Entered service on 1 Oct. 1962.

5 River Type

AM 4	AM 5	AM 6	AM 7	AM 8
Displacement:	35 tons			
Machinery:	Diesel, Speed=10 kts.			

General
River patrol craft of steel construction. Built in Tampico and Veracruz. Entered service from 1960 to 1962.

TRANSPORT



ZACATECAS

1964, Official

1 Ulua Type

ZACATECAS (Pennant No. B 2)	
Displacement:	780 tons <i>standard</i>
Dimensions:	158×27½×9 feet
Guns:	1—40 mm. AA., 2—20 mm. AA. (single)
Machinery:	1 MAN diesel. H.P.: 560=10 kts.
Complement:	50 (13 officers and 37 men)

General
Built at Ulua Shipyard, Veracruz. Launched in 1959. Cargo ship type. The hull is of welded steel construction.

OILERS

1 Ex-U.S. YOG Type

AGUASCALIENTES (ex-YOG 6) Pennant No. A 5	
Displacement:	440 tons standard (1,235 tons full load)
Dimensions:	190X36X13 feet
Machinery:	1 Fairbanks Morse diesel. B.H.P.: 600=8 kts.
Capacity:	6,570 barrels
Complement:	24 (5 officers, 19 men)

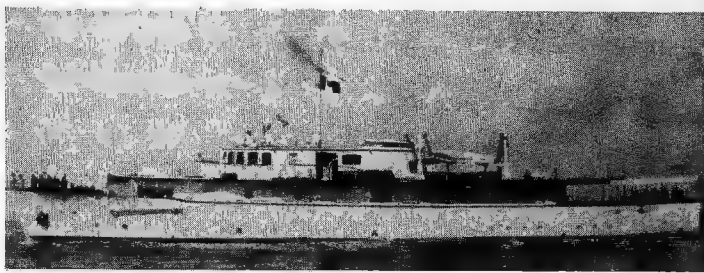
General
Former United States self-propelled fuel oil barge, district craft. Built by Geo. H. Mathis Co. Ltd., Camden, N.J. in 1943. Purchased by Mexico in 1964. Entered service in Nov.

1 Ex-U.S. YO Type

TLAXCALA (ex-YO 107) Pennant No. A 6	
Displacement:	440 tons (1,400 tons full load)
Dimensions:	174 (o.a.)×33×13 (max.) feet
Machinery:	Union diesel direct. B.H.P.: 500=8 kts.
Capacity:	6,570 barrels
Complement:	26

General
Former United States self-propelled fuel oil barge, district craft. Built by Geo. Lawler & Son, Neponset, Mass., in 1943. Transferred by sale in 1964 by U.S. Entered service in Nov.

PRESIDENTIAL YACHT



SOTAVENTO

1962, Official

1 Higgins Type

SOTAVENTO (Pennant No. A 1)	
Displacement:	300 tons <i>standard</i> (400 tons <i>full load</i>)
Dimensions:	165½×28×10 feet
Machinery:	Diesels. B.H.P.: 1,800=17 kts.

General
Built by Higgins, New Orleans. Launched in 1947. Handsome, symmetrical and low-lying. Streamlined, with truncated funnel. Air conditioned and equipped with radar.

Disposal of Yacht Training Ship
The training ship *Zaragoza* (ex-*Orizaba*, ex-*Southern Cross*, ex-*Rover*), former Presidential Yacht, was officially stricken from the Navy List for disposal in Mar. 1964, and was replaced as Training Ship by the frigate transport *Durango*.

LANDING CRAFT

6 U.S. LCT Type

General
There are reported to be six former tank landing craft of the United States LCT (LCU) type with a length of 119 feet, employed for transport and general utility purposes.

TUGS

1 Ex-U.S. ATA Type

SOTOYOMO (ex-U.S.S. ATA 121)	
Displacement:	534 tons standard (835 tons full load)
Dimensions:	134½ (w.l.), 143 (o.a.)×33½×13½ (max.) feet
Guns:	1—3 inch, 50 cal. d.p.
Machinery:	General Motors diesel-electric, 1 shaft. B.H.P.: 1,500 =13 kts.
Complement:	45 (5 officers and 40 men) accommodation

General
Auxiliary ocean tug of the United States "Maricopa" class, ATA type. Built by Livingston Shipbuilding Company, Orange, Texas. Laid down on 7 Sep. 1942. Launched on 19 Oct. 1942. Completed on 20 May 1943. Loaned to Mexico under the Military Aid Programme in June 1963.

1 Patrol Type

NEREIDA	
Displacement:	85 tons <i>standard</i>
Dimensions:	80 (pp.)×16×7 feet
Machinery:	Double expansion. I.H.P.: 190=10 kts.
Boilers:	1 Scotch

General
Former patrol boat adapted as a fleet tug and also as a fire fighting vessel.

3 Small Type

General
There are also reported to be three other small-steel-hulled tugs varying from 60 to 90 feet in length.

Disposal
The tug *Francisco Nicolau*, employed as a navigation vessel and lighthouse tender, was officially stricken from the list in 1965, for disposal.

NATO

North Atlantic Treaty Organisation (NATO) Naval Forces are:—
BELGIUM, CANADA, DENMARK, FRANCE, GERMAN FEDERAL REPUBLIC, GREECE, ICELAND, ITALY, NETHERLANDS, NORWAY, PORTUGAL, TURKEY, UNITED KINGDOM, UNITED STATES.

In June 1964 NATO nations jointly manned the U.S. guided missile destroyer *Biddle*, the selected mixed-manned trials ship. The complement was as follows:—United States: 10 officers (including the Commander) and 155 men; United Kingdom: 2 officers and 24 ratings; Italy: 2 officers and 30 men; Netherlands: 1 officer and 17 men; German Federal Republic: 2 officers and 47 men; Turkey: 1 officer and 19 men; Greece: 2 officers and 24 men. Total: 20 officers and 316 men. This was a trial for the eh proposed multi-lateral force of 25 merchant type ships fitted with Polaris missiles and manned by mixed NATO nation crews. *Biddle* was renamed *Claude V. Ricketts* (see U.S. section) on 28 July 1964.
In Feb. 1965 the Turkish contingent withdrew and to compensate the United States contingent was increased to 10 officers and 174 men.

MOROCCO

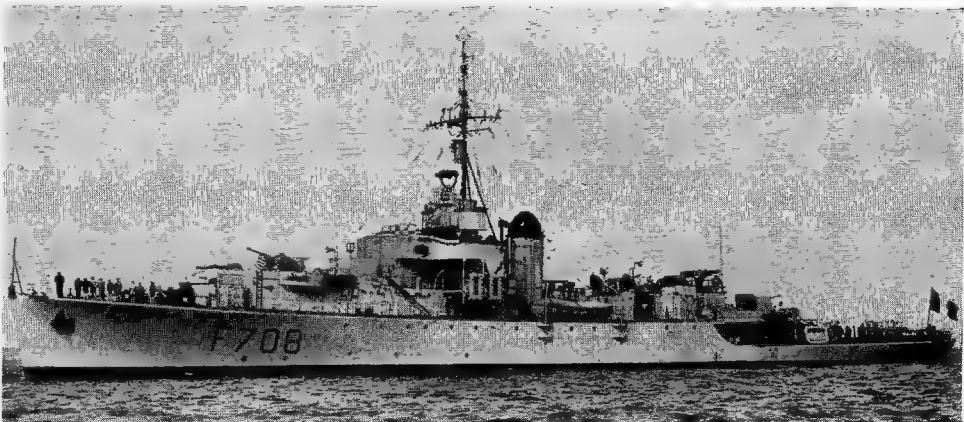
FRIGATE

AL MOUNA (ex-La Surprise, ex-H.M.S. Torridge)

Builders: Blyth Dry Docks & Shipbuilding Co.
Laid down: 17 Oct. 1942
Launched: 16 Aug. 1943
Completed: 6 Apr. 1944

Displacement: 1,450 tons standard (2,150 tons full load)
Dimensions: 301½ (pp.), 305½ (o.a.)×36½×12 feet
Guns: 2—4.1 inch; 3—40 mm. AA.
A/S weapons: 1 Hedgehog; 4 D.C.T.; 2 D.C. racks
Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=18 kts.
Boilers: 2 Admiralty 3-drum type
Oil fuel: 645 tons
Radius: 7,700 miles at 12 kts.
Complement: 123 (10 officers, 113 men)

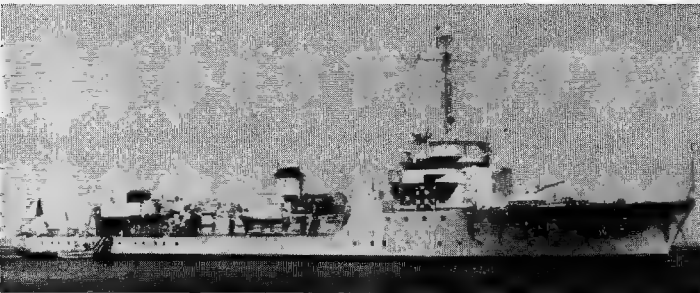
General
Originally a British frigate of the "River" class, purchased by France in 1944. Sold to Morocco in June 1964 when she was converted as flagship and Royal yacht by Chantiers Dubigeon at Brest. Accepted on 5 Mar. 1965.



AL MOUNA (before conversion)

Wright & Logan

CORVETTE (Aviso)



EL LAHIQ (before transfer)

French Navy, Official

EL LAHIQ (ex-Chamois, ex-Annamite)

Displacement: 647 tons standard (920 tons full load)
Dimensions: 257×28½×10½ feet
Guns: 2—4.1 inch, 1—40 mm. AA., 4—20 mm. AA.
Machinery: Sulzer diesels, 2 shafts. B.H.P.: 4,000=20 kts.
Oil fuel: 100 tons
Radius: 10,000 miles at 9 kts., 5,200 miles at 15 kts.
Complement: 81 (6 officers, 75 men)

General
Former French aviso of the early "Chamois" class. Built as Annamite by Lorient Dockyard, laid down in Apr. 1938, launched on 17 June 1939, and completed in Feb. 1940. Renamed Chamois in 1953. Transferred from the French Navy to the Moroccan Navy on 7 Nov. 1961 and renamed El Lahiq. May be returned to France. Sister ship of Dustur (ex-Chevreuil) in the Tunisian Navy.

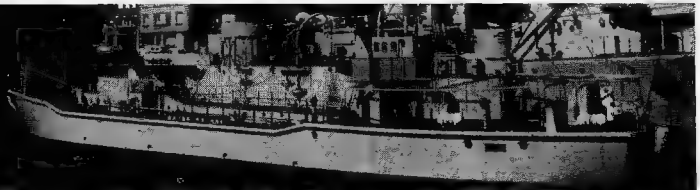
SEAWARD PATROL CRAFT (Vedette de Port)

ES SABIQ (ex-P 762, VC 12)

Displacement: 75 tons standard (82 tons full load)
Dimensions: 104½×15½×5½ feet
Guns: 2—20 mm. AA.
Machinery: Mercedes-Benz diesels, 2 shafts B.H.P.: 2,700=28 kts.
Radius: 1,500 miles at 15 kts.
Complement: 17

General
Former French seaward defence motor launch of the VC type. Built by Chantiers Navals d'Estérel. Launched on 13 Aug. 1957. Completed in 1958. Transferred from the French Navy to the Moroccan Navy on 15 Nov. 1960 and renamed Es Sabiq.

UTILITY LANDING CRAFT



LIEUTENANT MALGHAGH

1965, courtesy Admiral M. Adam

LIEUTENANT MALGHAGH

Displacement: 292 tons light (642 tons full load)
Dimensions: 193½×39½×4½ feet
Guns: 2—20 mm. AA.
Machinery: 2 MGO diesels, 2 shafts. B.H.P.: 1,000=8 kts.
Complement: 16

General
Ordered early in 1963 from the Chantiers Navals Franco-Belges and completed in 1964. Similar to the French landing craft of the EDIC type built at the same yard.

PATROL VESSELS (Escorteur Cotier)

LIEUTENANT RIFFI

Displacement: 325 tons standard (374 tons full load)
Dimensions: 170 (w.l.), 173½ (o.a.)×23×6½ feet
Guns: 1—3 inch d.p., 2—40 mm. AA.
A/S weapons: 2 ASM mortars, 1 D.C. rack
Machinery: SEMT-Pielstick diesels, 2 shafts. B.H.P.: 3,600=19 kts.
Radius: 3,000 miles at 12 kts., 2,000 miles at 15 kts.
Complement: 59 (4 officers, 55 men)

General
A new patrol vessel of an improved "Fourgueux" class, PT type. Ordered by the Moroccan Navy from Constructions Mécaniques de Normandie, Cherbourg. Laid down in May 1963. Variable pitch propellers.



AGADIR

1962, courtesy Ing. Augusto Nani

AGADIR ex-Goumier, (ex-U.S.S. PC 545)

Displacement: 325 tons standard (400 tons full load)
Dimensions: 170 (w.l.), 173½ (o.a.)×23×6½ feet
Guns: 1—3 inch d.p., 1—40 mm. AA., 5—20 mm. AA.
Machinery: 2 G.M. diesels, 2 shafts. B.H.P.: 3,600=20 kts.
Fuel: 60 tons
Radius: 6,000 miles at 10 kts., 2,300 miles at 18 kts.
Complement: 63 (4 officers, 59 men)

General
Steel submarine chaser of the PC type built in 1942. Transferred from the United States to France on 17 Oct. 1944. Transferred from the French Navy to the Moroccan Navy on 15 June 1960 and renamed Agadir.

MADAGASCAR

The République Malgache became an independent state on 26 June 1960.

PATROL VESSELS

TANAMASOANDRO (ex-Marjolaine, ex-D 337, ex-YMS 69)

Displacement: 280 tons standard (325 tons full load)
Dimensions: 134½×24½×12 feet
Guns: 1—3 inch, d.p., 2—20 mm. AA., 2 M.G.
Machinery: 2 diesels, 2 shafts. B.H.P.: 1,000=15 kts.
Oil fuel: 36 tons
Radius: 3,000 miles at 10 kts.

General
Former French patrol vessel, ex-coastal minesweeper of the U.S. YMS type, transferred from the French Navy to the new Malgache Navy at Diego Suarez on 18 Feb. 1961 and name changed from Marjolaine to Tanamasoandro (which means "Sunray").

MAILAKA (ex-P 758, VC 8)

Displacement: 75 tons standard 82 tons full load)
Dimensions: 104½×15½×5½ feet
Guns: 2—20 mm. AA.
Machinery: Mercedes-Benz diesels, 2 shafts. B.H.P.: 2,700=28 kts.
Radius: 1,500 miles at 15 kts.
Complement: 15

General
Former French seaward defence motor launch of the VC Type. Built by the Constructions Mécaniques de Normandie, Cherbourg. Launched on 21 Jan. 1958. Completed in 1959. Transferred from the French Navy to the Malgache Navy in 1963.

ROYAL NETHERLANDS NAVY

Administration

Minister of Defence:
P. J. S. de Jong

Secretary of State for Defence (Navy):
A. Van Es

Chief of the Naval Staff
and Commander-in-Chief:
Vice-Admiral A. H. J. van der Schatte
Olivier.

New Construction Programme

6 frigates of the British "Leander" class design powered by steam turbines;

2 conventional submarines of the triple-hulled ocean-going type;

2 conventional submarines, ocean-going type;

Personnel

1 January 1965: 21,750 officers and ratings (including 2,235 officers and ratings of the Naval Air Arm, 3,120 officers and men of the Royal Marine Corps and 275 officers and women of the W. R.N.L.N.S.).

Ships

Warships are painted greyish blue, except submarines, which are black overall. Ships of the Royal Netherlands Navy are referred to by the prefix "Hr. Ms."

Navy Estimates

Naval Attaché in London:
Captain H. A. van Oorde.

Naval Attaché in Washington:
Rear-Admiral H. M. van den Wall Bake.

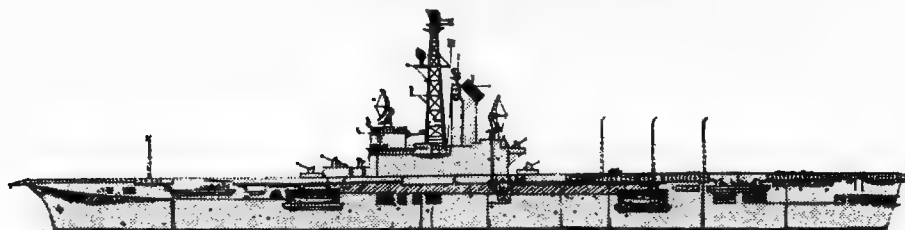
1956: Fl. 342,312,000	1961: Fl. 430,880,000
1957: Fl. 352,770,000	1962: Fl. 503,960,000
1958: Fl. 363,793,000	1963: Fl. 544,805,000
1959: Fl. 360,609,000	1964: Fl. 556,753,000
1960: Fl. 380,779,000	1965: Fl. 621,109,000

Mercantile Marine

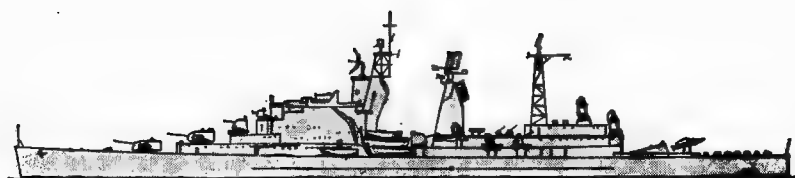
Lloyd's Register of Shipping:
1,889 vessels of 5,110,002 tons gross

Silhouettes

Scale: 150 ft.=1 inch.



KAREL DOORMAN



DE ZEVEN PROVINCIE (after guided missile conversion)



FRIESLAND Class



DE RUYTER



HOLLAND Class



VAN AMSTEL Class (DE ZEEUW inset)

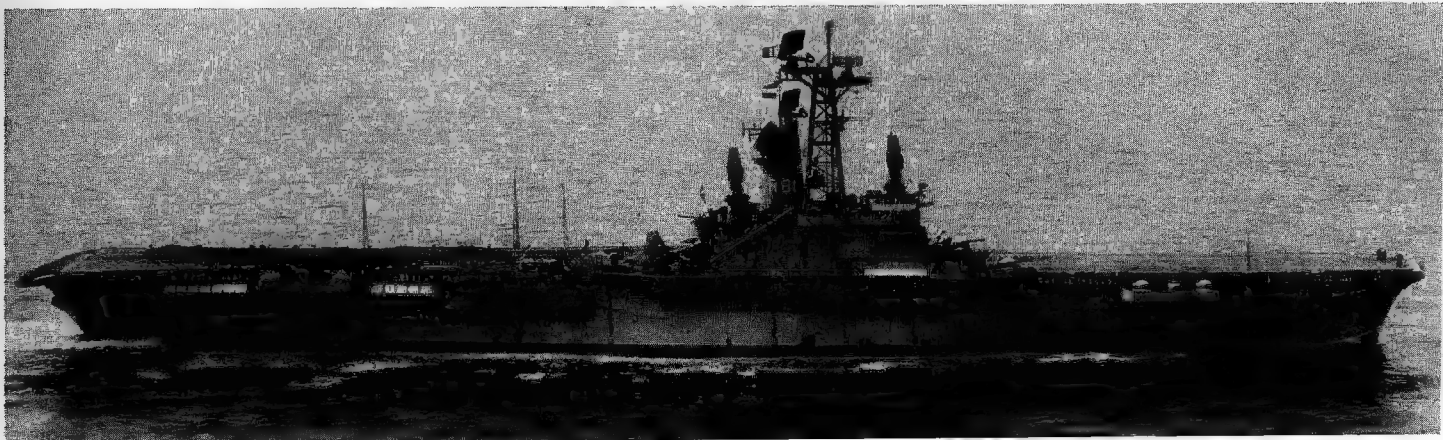


WOLF Class



SNELLIUS Class

AIRCRAFT CARRIER (Vliegkampschip)



KAREL DOORMAN

1965, Skyfotos



KAREL DOORMAN

1961. Royal Netherlands Navy, Official

I Ex-British "Colossus" Class

KAREL DOORMAN (ex-H.M.S. Venerable)

- Deck Letter: D
Pennant No.: R 81
Builders: Cammell Laird & Co. Ltd., Birkenhead
Laid down: 3 Dec. 1942
Launched: 30 Dec. 1943
Completed: 17 Jan. 1945
- Displacement: 15,892 tons standard (19,896 tons full load)
Dimensions: Length: 630 (pp.), 693½ (o.a.) feet, Beam: 80 feet. Width over-all: 121½ feet (as reconstructed)
Draught: 24½ (max.) feet
Guns: 10—40 mm. AA. and saluting
Aircraft: Capacity 21. Official complement: 8 Tracker S2A's, 6 Seabat SH-34J helicopters
Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 40,000—24.25 kts.
Boilers: 4, of 3-drum type: 400 lb. working pressure, 700 degrees maximum superheat
Oil fuel: 3,200 tons
Radius: 12,000 miles at 14 kts.
Complement: 1,462 (official revised figure)

General
Purchased from Great Britain on 1 Apr. 1948. Commissioned in the Royal Netherlands Navy on 28 May 1948. Insulated for tropical service and partly air-conditioned. Underwent modernisation in 1955-58, including angled flight deck and steam catapult, mirror sight landing system and new anti-aircraft battery of ten 40 mm. guns, at the Wilton-Fijenoord Shipyard, at a cost of 25 million guilders. Conversion completed in July 1958.

Hangar
Dimensions of hangar are: Length, 445 feet; width, 52 feet; clear depth, 17½ feet.

Engineering
Engines and boilers are arranged en echelon, the two propelling-machinery spaces having two boilers and one set of turbines in each space, on the unit system.

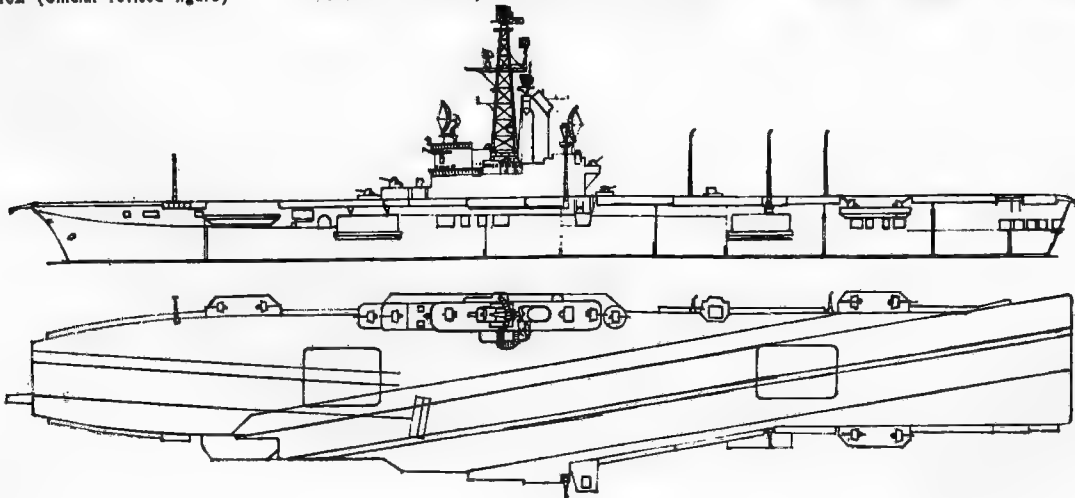
Appearance
With a modified island and bridge and a lattice tripod radar mast, she differs considerably from her former appearance and from her original sister ships in the British, French, Argentine and Brazilian navies.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.



KAREL DOORMAN

1965, Skyfotos



CRUISERS (Kruisers)



DE ZEVEN PROVINCIE after conversion to guided missile cruiser

1965, Royal Netherlands Navy, Official



DE RUYTER

1964, courtesy Godfrey H. Walker, Esq.

DE RUYTER (ex-De Zeven Provinciën)
DE ZEVEN PROVINCIE (ex-De Ruyter, ex-Eendracht
ex-Kijkduin)

Name:	De Ruyter	De Zeven Provinciën
Pen. No.:	C 801	C 802
Builders:	Wilton-Fijenoord, Schiedam	Rotterdam Drydock Co.
Laid down:	5 Sep. 1939	19 May 1939
Launched:	24 Dec. 1944	22 Aug. 1950
Completed:	18 Nov. 1953	17 Dec. 1953

Displacement:	9,529 tons standard (11,850 tons full load)
Dimensions:	Length: 590½ (pp.), 614½ and 609 (o.a.) feet respectively. Beam: 56½ feet. Draught: 22 (max.) feet
Guns:	De Ruyter: 8—6 inch in twin turrets, 8—57 mm. AA. in twin turrets, 8—40 mm. AA. De Zeven Provinciën: 4—6 inch in twin turrets, 6—57 mm. AA. in twin turrets, 4—40 mm. AA.
Guided weapons:	De Zeven Provinciën only: One twin launcher aft for "Terrier" missiles
Armour:	3"—2" side; 4", 2½"—2" turrets
Machinery:	Parsons geared turbines, 2 shafts S.H.P.: 85,000= 32 kts.
Boilers:	4, of 3-drum type
Complement:	De Ruyter: 926 De Zeven Provinciën: 848

General

Machinery by K. M. de Schelde. Construction resumed in 1946. De Ruyter was launched by the Germans as the De Zeven Provinciën, but as the latter name was given to the former De Ruyter when she was launched on 22 Aug 1950, the war-launched ship took her sister's name in exchange. Tripod mast, originally abaft after funnel, is now before after funnel.

Guided Missile Conversion

De Zeven Provinciën has been rearmed with one twin launcher for "Terrier" guided missiles. Conversion by Rotterdamsche Droogdok Mij, Rotterdam. "Terrier" installation by N.V. Dok en Werf Mij Wilton-Fijenoord, Schiedam. Conversion commenced in 1962 and was completed at the end of 1964. De Ruyter will not be converted.

Photographs

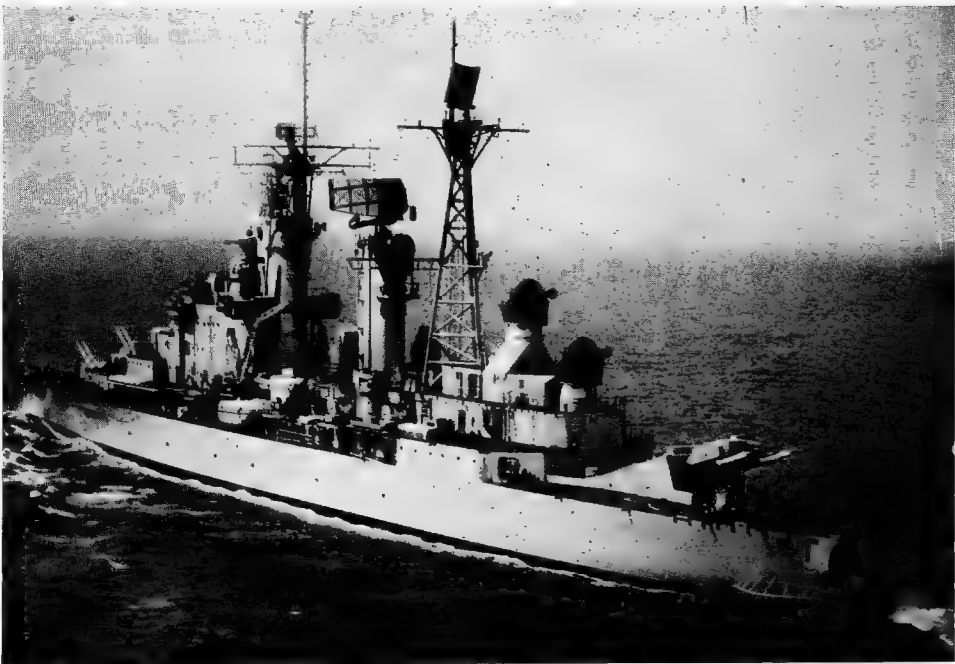
A photograph of De Zeven Provinciën before conversion appears in the 1961-62 to 1964-65 editions.

Gunnery

Main armament has 60 degrees elevation. All guns are fully automatic and radar controlled. The 6 inch guns have a rate of fire of 15 rounds per minute.

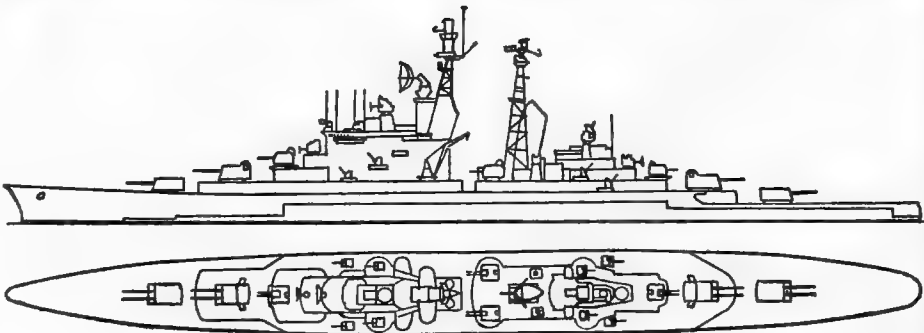
Drawing

Represents De Ruyter. Port elevation and plan. De Zeven Provinciën has straight bow which accounts for the variation in overall length. Scale: 128 feet=1 inch.



DE ZEVEN PROVINCIE

1965, Royal Netherlands Navy, Official



ANTI-SUBMARINE DESTROYERS DDE (Onderzeebootjagers)



ROTTERDAM

1964, courtesy Godfrey H. Walker, Esq.

8 "Friesland" Class

AMSTERDAM DRENTHE FRIESLAND	GRONINGEN LIMBURG OVERIJSSSEL	ROTTERDAM UTRECHT
Displacement:	2,497 tons standard (3,070 tons full load)	
Dimensions:	370 (pp.), 380½ (o.a.)×38½×13 feet	
Guns:	4—4.7 inch in twin turrets, 6—40 m m. AA, 1 flare rocket launcher	
Tubes:	Removed (see Torpedo Tubes)	
A/S weapons:	2 four-barrelled rocket throwers (depth charge mortars)	
Machinery:	Geared turbines 2 shafts, S.H.P.: 60,000=36 kts.	
Boilers:	4 Babcock & Wilcox	
Complement:	284	

General
These ships have some side armour as well as deck protection, like light cruisers. They have "Limbo" type anti-submarine rocket throwers. Named after provinces of The Netherlands, and the two principal cities.

Gunnery
The 4.7 inch guns are fully automatic with a rate of fire of 50 rounds per minute. All guns are radar controlled.

Torpedo Tubes
Utrecht was equipped with eight 21 inch anti-submarine torpedo tubes (single mounts), four on each side) in 1960 and Overijssel in 1961, and the others were to have been similarly armed, but owing to further developments in anti-submarine warfare the project was dropped and torpedo tubes already fitted were removed.

Name	Pen. No.	Builders	Laid down	Launched	Completed
Friesland	D 812	Nederlandse Dok en Scheepsbouw Mij., Am'dam	17 Dec. 1951	21 Feb. 1953	22 Mar. 1956
Groningen	D 813	Nederlandse Dok en Scheepsbouw Mij., Am'dam	21 Feb. 1952	9 Jan. 1954	12 Sep. 1956
Limburg	D 814	Koninklijke Maatschappij De Schelde, Flushing	28 Nov. 1953	5 Sep. 1955	31 Oct. 1956
Overijssel	D 815	Dok-en-Werfmaatschappij Wilton-Fijenoord	15 Oct. 1953	8 Aug. 1955	4 Oct. 1957
Drenthe	D 816	Nederlandse Dok en Scheepsbouw Mij., Am'dam	9 Jan. 1954	26 Mar. 1955	1 Aug. 1957
Utrecht	D 817	Koninklijke Maatschappij De Schelde, Flushing	15 Feb. 1954	2 June 1956	1 Oct. 1957
Rotterdam	D 818	Rotterdamse Droogdok Mij., Rotterdam	7 Jan. 1954	26 Jan. 1956	28 Feb. 1957
Amsterdam	D 819	Nederlandse Dok en Scheepsbouw Mij., Am'dam	26 Mar. 1955	25 Aug. 1956	10 Apr. 1958

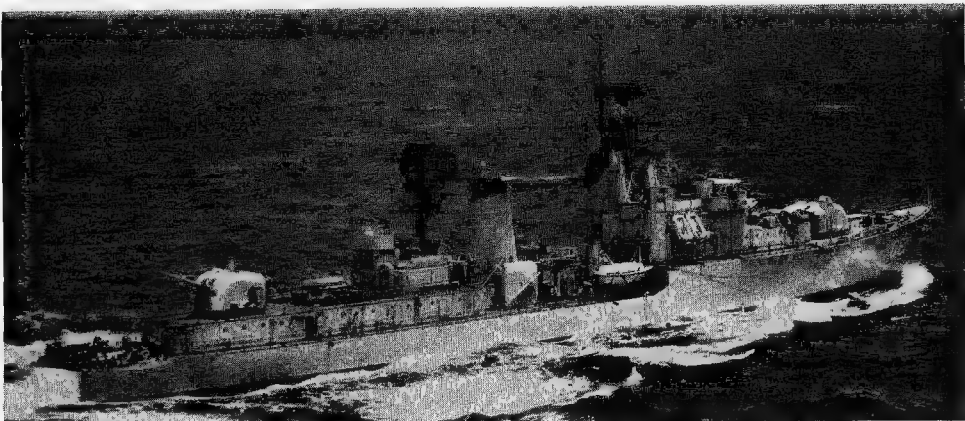
4 "Holland" Class

GELDERLAND HOLLAND	NOORD BRABANT ZEELAND
Displacement:	2,215 tons standard (2,765 tons full load)
Dimensions:	360½ (pp.), 371 (o.a.)×37½×12½ feet
Guns:	4—4.7 inch in twin turrets; 1—40 mm. AA.
A/S weapons:	2 four-barrelled rocket throwers (depth charge mortars)
Machinery:	Geared turbines. 2 shafts. S.H.P.: 45,000=32 kts.
Boilers:	4 Babcock & Wilcox
Complement:	247

General
These ships were equipped with the turbines originally built before the Second World War for the destroyers of the "Gerard Callenburgh class then under construction. In May 1940 these turbines fell into German hands, but in 1945 they were recovered, as the destroyers which the Germans ordered to be built by Netherlands shipbuilding yards and fitted with these turbines were never built.

Gunnery
The 4.7 inch guns are fully automatic and radar controlled.

Photographs
Photographs of Noord Brabant and Holland appear in the 1957-58 edition and of Zeeland in the 1958-59 to 1960-61 editions.
Photographs of Friesland appear in the 1956-57 to 1958-59 editions, and of Overijssel in the 1958-59 to 1961-62 editions.



GELDERLAND

1961, Royal Netherlands Navy, Official

Name	Pen. No.	Builders	Laid down	Launched	Completed
Holland	D 808	Rotterdamse Droogdok Mij., Rotterdam	21 Apr. 1950	11 Apr. 1953	31 Dec. 1954
Zeeland	D 809	Koninklijke Maatschappij De Schelde, Flushing	12 Jan. 1951	27 June 1953	1 Mar. 1955
Noord Brabant	D 810	Koninklijke Maatschappij De Schelde, Flushing	1 Mar. 1951	28 Nov. 1953	1 June 1955
Gelderland	D 811	Dok-en-Werfmaatschappij Wilton-Fijenoord	10 Mar. 1951	19 Sep. 1953	17 Aug. 1955

FRIGATES (Fregatten)

6 New Construction
"Van Speijk" Class

Displacement:	2,200 tons standard (2,850 tons full load)
Dimensions:	370½ (o.a.)×41×13½ (max.) feet
Guns:	2—4.5 inch (twin turret)
Guided weapons:	2 quadruple launchers for "Sea-cat" close range anti-aircraft missiles
A/S weapons:	1 three-barrelled depth charge mortar. Variable depth sonar
Aircraft:	1 lightweight helicopter armed with homing torpedoes
Machinery:	2 sets double reduction geared steam turbines. 2 shafts. S.H.P.: 30,000=28.5 kts.
Complement:	254

General
Four new frigates were built as replacements for the three frigates of the "Piet Hein" class and the frigate Van Speijk which was scrapped in 1955. The ships will be based on the design of the British "Leander" class.

Name	Yard No.	Builders	Laid down	Launched
TJERK HIDDES	322	Koninklijke Maatschappij De Schelde, Flushing	1 June 1964	
VAN GALEN	321	Koninklijke Maatschappij De Schelde, Flushing	25 July 1963	
VAN NES	518	Nederlandse Dok en Scheepsbouw Mij., Amsterdam	25 July 1963	
VAN SPEIJK	517	Nederlandse Dok en Scheepsbouw Mij., Amsterdam	1 Oct. 1963	5 Mar. 1965
EVERTSEN	328	Koninklijke Maatschappij De Schelde, Flushing	5 May 1965	
ISAAC SWEERS	519	Nederlandse Dok en Scheepsbouw Mij., Amsterdam	5 May 1965	

In order to avoid delay in the construction programme it was decided to fit out these ships with equipment available at short notice and not to wait for equipment still in the development stage.

As far as possible equipment of Netherlands manufacture will be installed, and this will result in a number of changes in the ships' superstructure.

Four ships were ordered in Oct. 1962. Two additional frigates of the same design were ordered later. Although in general they are based on the design of the British

Improved Type 12, they will have small modifications in accordance with the requirements of the Royal Netherlands Navy.

Disposals of "Piet Hein" Class
Of the three fast frigates of the "Piet Hein" class, converted from destroyers (originally "S" class destroyers purchased from Great Britain in 1945-46 and reconstructed with helicopter platform at Rijkswerf Willemsoord in 1957-58) Piet Hein (ex-H.M.S. Serapis) was scrapped on 16 Oct. 1961, and Evertsen (ex-H.M.S. Scourge) and Kortenaar (ex-H.M.S. Scorpion, ex-Sentinel) were withdrawn from the service in Dec. 1962 and scrapped.

6 "Van Amstel" Class

(Ex-U.S. Destroyer Escort Type)

DE BITTER (ex-U.S.S. *Rinehart*, DE 196)
 DE ZEEUW (ex-U.S.S. *Elsner*, DE 192)
 DUBOIS (ex-U.S.S. *O'Neill*, DE 188)
 VAN AMSTEL (ex-U.S.S. *Burrows*, DE 195)
 VAN EWIJCK (ex-U.S.S. *Gustafson*, DE 182)
 VAN ZIJLL (ex-U.S.S. *Stern*, DE 187)

Displacement: 1,300 tons standard, 1,510 tons normal (1,900 tons full load)
 Dimensions: 306 (o.a.)×36×14 (max.) feet
 Guns: 3—3 inch, 50 cal. d.p., 6—40 mm. AA.
 Tubes: Removed (see notes)
 A/S weapons: 1 Hedgehog, 4 D.C.T., 2 D.C. racks
 Machinery: General Motors diesels, Electric drive, B.H.P.: 6,000=19 kts.
 Oil fuel: 300 tons
 Radius: 11,500 miles at 11 kts.
 Complement: 170 to 210

General

Former United States destroyer escorts, DE, of the "Bostwick" class acquired under the Mutual Defence Assistance Programme. *Van Amstel* and *De Bitter* were commissioned in the Royal Netherlands Navy on 1 June 1950. *Dubois* and *Van Ewijk* were transferred on 23 Oct. 1950, and *De Zeeuw* and *Van Zijl* on 3 May 1951, at Boston.

Torpedo Tubes

The original three 21 inch torpedo tubes in a triple mounting were removed.

Disposals of Frigates

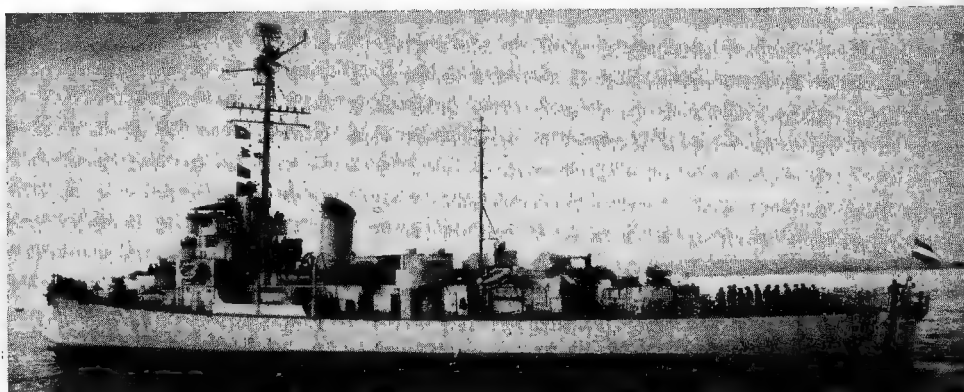
Johan Maurits van Nassau was scrapped in 1960; *Van Speijk* was stricken from the active list in 1960; *Batjan*, *Boeroe* and *Ceram* in 1958; *Jan van Brakel* in Aug. 1957; *Soemba* in Jan. 1956; *Van Kinsbergen* on 1 Dec. 1955; *Flores* on 1 May 1955. (*Flores* was renamed *Van Speijk* after the former *Van Speijk* was stricken from the active list but renamed *Flores* again after the launch of the new frigate *Van Speijk* on 5 Mar. 1965.)

Disposal of Frigate (ex-Destroyer)

Marnix (ex-H.M.S. *Garland*), former British destroyer of the "G" flotilla, purchased by the Netherlands in 1947 and subsequently refitted as an anti-submarine vessel and engineering training ship, and reclassified as a frigate, was stricken from the active list on 31 Jan. 1964 and was sold for scrap on 10 Apr. 1964 to J. de Smedt at Antwerp.

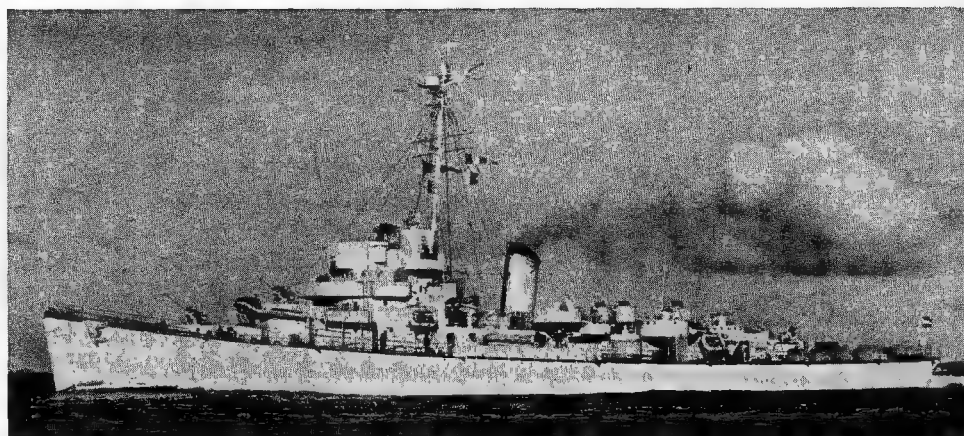
Disposal of Destroyers

The destroyers *Banckert* (ex-H.M.S. *Quilliam*) and *Van Galen* (ex-H.M.S. *Noble*) were sold for scrap on 8 Feb. 1957, *Banckert* to J. de Smedt at Antwerp and *Van Galen* to Frank Rijdsdijk's Industriële Handelsschepingen at Hendrik-Ido-Ambacht.



DE BITTER

1964, courtesy Mr. Michael D. J. Lennon



DE ZEEUW

1961, Royal Netherlands Navy, Official

Name	Pennant No.	Builders	Launched	Completed
<i>De Bitter</i>	F 807	Federal S.B. & D.D. Co., Port Newark	24 Oct. 1943	19 Dec. 1943
<i>De Zeeuw</i>	F 810	Federal S.B. & D.D. Co., Port Newark	12 Dec. 1943	1 Jan. 1944
<i>Dubois</i>	F 809	Federal S.B. & D.D. Co., Port Newark	14 Nov. 1943	6 Dec. 1943
<i>Van Amstel</i>	F 806	Dravo Corporation, Wilmington, Del.	8 Jan. 1944	12 Feb. 1944
<i>Van Ewijk</i>	F 808	Federal S.B. & D.D. Co., Port Newark	3 Oct. 1943	1 Nov. 1943
<i>Van Zijl</i>	F 811	Federal S.B. & D.D. Co., Port Newark	31 Oct. 1943	1 Dec. 1943

6 "Wolf" Class (Corvettes)

U.S. PCE Type Escort Patrol Vessels

FRET (ex-PCE 1604) PANTER (ex-PCE 1608)
 HERMELIJN (ex-PCE 1605) VOS (ex-PCE 1606)
 JAGUAR (ex-PCE 1609) WOLF (ex-PCE 1607)

Displacement: 808 tons standard (975 tons full load)
 Dimensions: 180 (pp.), 184½ (o.a.)×33×9½ (mean), 14½ (max.) feet
 Guns: 1—3 inch, d.p., 6—40 mm. AA. (*Jaguar*, *Panther*, 4—40 mm.), 8—20 mm. AA.
 A/S weapons: 1 Hedgehog, 2 D.C.T. (*Jaguar*, *Panther*, 4 D.C.T.), 2 D.C. racks
 Machinery: Diesels, 2 shafts. B.H.P.: 1,600=15 kts.
 Complement: 96

General

All built in the United States under the Mutual Defence Assistance Programme, *Jaguar*, *Panther* and *Wolf* by Avondale Marine Ways, Inc., New Orleans, Louisiana, *Fret*, *Hermelijn* and *Vos* by the General Shipbuilding and Engineering Works, Boston.

Photographs

A photograph of *Fret* appears in the 1957-58 to 1960-61 editions.

Name	No.	Laid down	Launched	Completed
<i>Fret</i>	F 818	18 Dec. 52	30 July 53	4 May 54
<i>Hermelijn</i>	F 819	2 Mar. 53	6 Mar. 54	5 Aug. 54
<i>Jaguar</i>	F 822	10 Dec. 52	20 Mar. 54	11 June 54
<i>Panther</i>	F 821	1 Dec. 52	30 Jan. 54	11 June 54
<i>Vos</i>	F 820	3 Aug. 52	1 May 54	2 Dec. 54
<i>Wolf</i>	F 817	15 Nov. 52	2 Jan. 54	26 Mar. 54

Disposal

The corvette *Lynx* (ex-PCE 1626) was handed over to the Italian Navy on 18 Oct. 1961 at Den Helder as part of the United States Mutual Defence Assistance Programme and renamed *Aquila* (see Italian section).

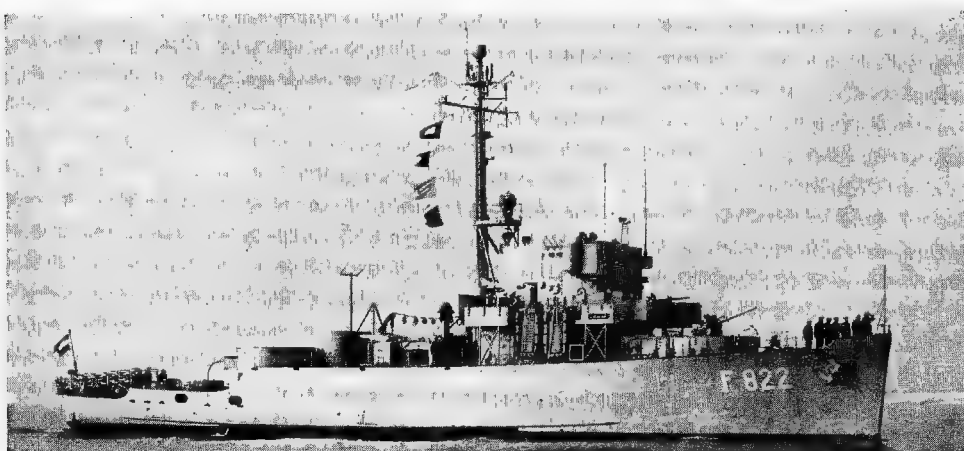
Disposal of Minesweeper Support Ship

The minesweeper support ship *Willem van der Zaan*, former frigate, former minelayer, was removed from the active list on 1 Oct. 1963 and is being used as an accommodation ship at Flushing, pennant number A 880 (instead of F 824).



PANTER

1962, Royal Netherlands Navy, Official



JAGUAR

1961, Wright & Logan

SUBMARINES (Onderzeeboten)

Projected

Nuclear Powered Type
In the "defence note" issued in June 1964 the construction of nuclear powered submarines was announced. A first instalment for the construction of the first nuclear powered submarine was approved in the 1965 Navy Estimates. The cost is estimated to amount to £17,000,000.

New Construction

Conventionally Powered Type
In the 1964 Navy Estimates a first instalment was approved for the construction of two submarines of "teardrop" design planned to replace the two submarines of the "Walrus" class (on loan from the U.S. until 1968).

2 "Dolfijn" Class
DOLFIJN **ZEEHOND**

2 "Potvis" Class
POTVIS **TONIJN**

Displacement: 1,140 tons standard; 1,494 tons surface; 1,826 tons submerged
Dimensions: 260½×25½×15¾ feet
Tubes: 8—21 inch
Machinery: 2 MAN. 12-cyl. diesels. 2 shafts. B.H.P.: 3,100=14.5 kts. surface Electric motors. H.P.: 4,200=17 kts. submerged
Complement: 64

General
These submarines are of a triple-hulled design. Maximum depth: 980 feet. Four new submarines were first voted for in 1949, but the contracts for *Potvis*, O 34 and *Tonijn*, O 35, were cancelled and their construction suspended pending a study of future requirements. The order was later replaced (see above). The four submarines are of the same design, but *Potvis* and *Tonijn* have several modifications compared with *Dolfijn* and *Zeehond* and are therefore officially considered to be a separate class.
Construction
The hull consists of three cylinders arranged in a triangular shape. The upper cylinder accommodates the crew, as well as navigational equipment and armament. The lower two cylinders house the propulsion machinery comprising diesel engines and electric motors. The three cylinders are fitted in a pressure-tight steel hull. See Frontispiece of the 1959-1960 edition for scale models—cutaway longitudinal section showing double decker roominess, and cross section showing triple hull permitting greater diving depth.

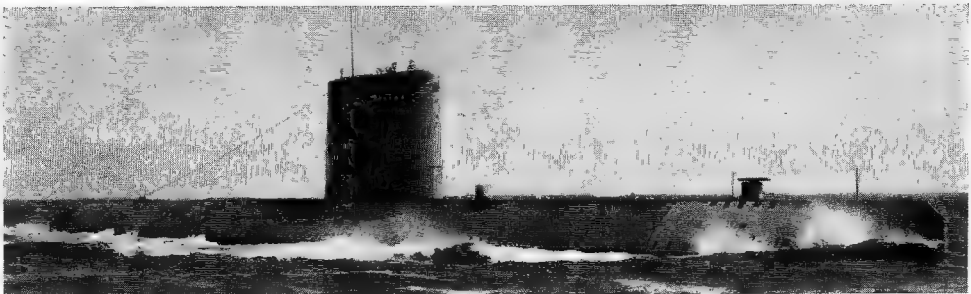
2 "Walrus" Class
(Ex-U.S. "Balao" Type)
WALRUS (ex-Icefish) **ZEELEEUW (ex-Hawkbill)**

Name: *Walrus* *Zeeleeuw*
Pennant No.: S 802 S 803
Builders: Manitowac S.B. Co., Manitowac S.B. Co., Wisconsin Wisconsin
Laid down: 1943 1943
Launched: 20 Feb. 1944 9 Jan. 1944
Completed: 10 June 1944 17 May 1944
Converted: 1952 1952
Transferred: 21 Feb. 1953 21 Apr. 1953
Displacement: 1,420 tons standard, 1,525 tons surface (2,425 tons submerged)
Dimensions: 309 (o.a.)×27×17 feet
Tubes: 10—21-inch (6 bow, 4 stern).
Machinery: G.M. 2-stroke diesels. B.H.P.: 6,500=20 kts. (surface). Electric motors. H.P.: 2,700=10 kts. (submerged)
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 79

General
Former United States "Balao" Class submarines, acquired on loan from the United States Navy for a period of five years, subsequently extended to ten years, and again later to fifteen years. They were transferred to the Royal Netherlands Navy on 21 Feb. and 21 April 1953, respectively, after having been converted and streamlined with enclosed conning tower "fin". 24 torpedoes can be carried.

1 "Tigerhaai" Class
(Ex-British "T" Class)
TIJGERHAAI (ex-Tarn)

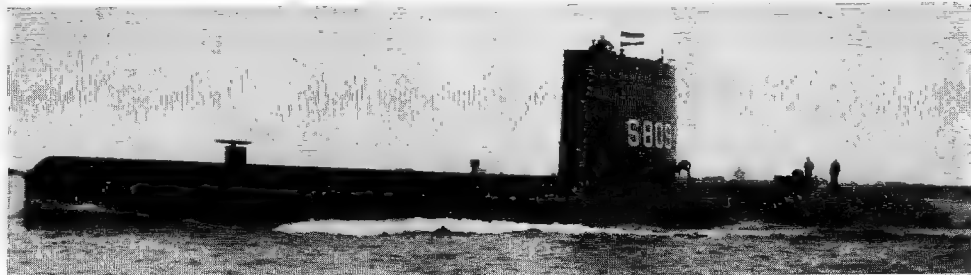
Pennant No.: S 812
Builders: Vickers-Armstrongs Ltd., (Barrow)
Laid down: 12 June 1943
Launched: 29 Nov. 1944
Completed: 6 Apr. 1945
Displacement: 1,210 tons standard, 1,444 tons surface, 1,605 tons submerged
Dimensions: 273½×26½×14½ feet
Tubes: 6—21 inch (bow)
Machinery: 2 diesels. B.H.P.: 2,500=15 kts. (surface). Electric motors. H.P.: 1,800=8 kts. (submerged)
Oil fuel: 210 tons
Radius: 9,000 miles at 10 kts.
Complement: 65



DOLFIJN

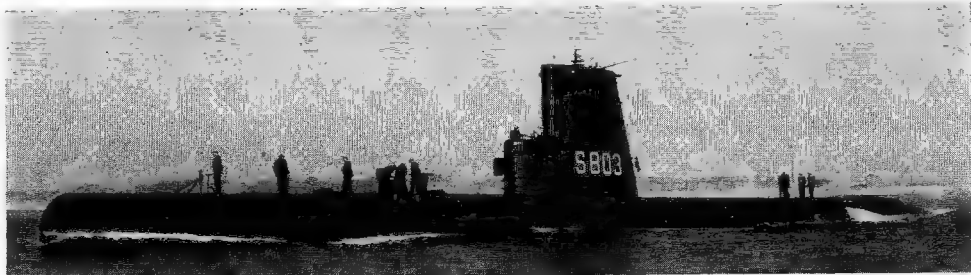
Added 1964, Royal Netherlands Navy, Official

Name	Pen.No.	Builders	Laid down	Launched	Completed
<i>Dolfijn</i>	S 808	Rotterdamse Droogdok Mij., Rotterdam	30 Dec. 1954	20 May 1959	16 Dec. 1960
<i>Potvis</i>		Dok en Werf Mij. Wilton-Fijenoord, Scheidam	17 Sep. 1962	12 Jan. 1965	
<i>Tonijn</i>		Dok en Werf Mij. Wilton-Fijenoord, Scheidam	27 Nov. 1962		
<i>Zeehond</i>	S 809	Rotterdamse Droogdok Mij., Rotterdam	30 Dec. 1954	16 Mar. 1961	16 Mar. 1961



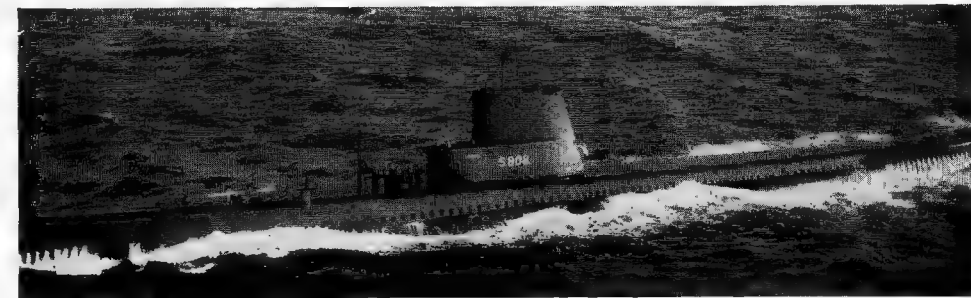
ZEEHOND

1963, Wright & Logan



ZEELEEUW

1964, Wright & Logan



WALRUS

1961, Royal Netherlands Navy, Official



TIJGERHAAI

1962, Wright & Logan

General
Purchased from Great Britain. Fitted with snort. Has streamlined sonar dome between the bow tubes.
Disposal
Zwaardvis (ex-H.M.S. *Talent*) was withdrawn from the service on 15 Jan. 1963 and scrapped in July 1963.

Disposals of "O" Class
O 27 was stricken from the active list in Dec. 1959 and sold. O 24, removed from the effective list in 1956 and used for instruction until she was discarded in 1962, was sold for scrap in June 1963 and broken up at Flushing. O 21 was sold for scrap on 24 Jan. 1958.

OCEAN MINESWEEPERS (Oceaanmijnnevigers)



ONVERDROTEN 1964, Stefan Terzibaschitsch

6 U.S. AM Wooden Type

ONBEVREESD (ex-AM 481) ONVERSAAGD (ex-AM 480)
ONVERDROTEN (ex-AM 485) ONVERSCHROKKEN (ex-AM 483)
ONVERMOEID (ex-AM 484) ONVERVAARD (ex-AM 482)

Displacement: 735 tons standard (790 tons full load)
Dimensions: 165 (pp.), 172 (o.a.)×36×10 (max.) feet
Guns: 1—40 mm. AA.
A/S weapons: 2 D.C.
Machinery: Diesel, B.H.P.: 1,600=15.5 kts.
Oil fuel: 46 tons
Radius: 2,400 miles at 12 kts.
Complement: 67

General
Built in the United States for the Netherlands under the terms of the Mutual Defense Assistance Program. All completed in 1954-55. *Onversaagd*, *Onbevreesd* and *Onvervaard* were built by Astoria Marine Construction Co. and the remaining three by Peterson, Builders, Wisconsin.

Photographs
A larger photograph of *Onverdroten* appears in the 1957-58 to 1959-60 editions, a starboard bow surface view in the 1960-61 edition, and a port bow view in the 1961-62 to 1963-64 editions.

Name	Pennant No.	Laid down	Completed
<i>Onversaagd</i>	M 884	1952	27 May 1954
<i>Onbevreesd</i>	M 885	1952	21 Sep. 1954
<i>Onverschrokken</i>	M 886	1952	22 July 1954
<i>Onvermoeid</i>	M 887	1952	23 Sep. 1954
<i>Onvervaard</i>	M 888	1952	31 Mar. 1955
<i>Onverdroten</i>	M 889	1952	22 Nov. 1954

PATROL VESSELS (Patrouille vaartuigen)



BALDER 1961, Royal Netherlands Navy, Official

5 U.S. SC Type Submarine Chasers

BALDER FREYR HADDA
BULGIA HEFRING

Displacement: 149 tons standard (225 tons full load)
Dimensions: 114½ (pp.), 119½ (o.a.)×20½×5½ feet
Guns: 1—40 mm., 3—20 mm.
A/S weapons: 2 D.C.T., Mousetrap
Machinery: Diesels, 2 shafts. S.H.P. 1,050=15.5 kts.
Radius: 1,000 miles
Complement: 27

General
Built in the Netherlands by Rijkswerf Willemsoord with United States funds under the terms of the Mutual Defense Assistance Program as an off-shore procurement. U.S. SC Nos. 1627-1631.

Photographs
A photograph of *Hadda* appears in the 1960-61 edition.

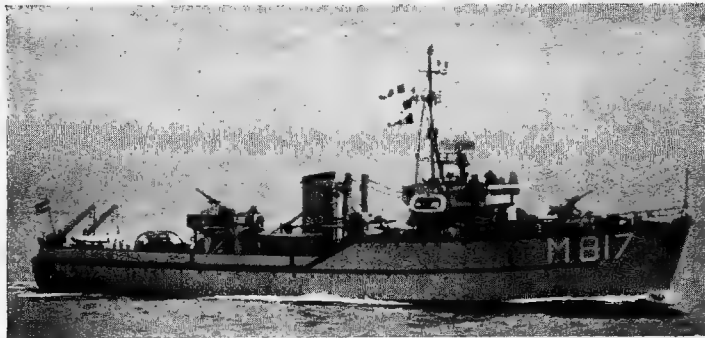
Name	Pennant No.	Laid down	Launched	Completed
<i>Balder</i>	P 802	12 Sep. 1953	24 Feb. 1954	6 Aug. 1954
<i>Bulgia</i>	P 803	10 Oct. 1953	24 Apr. 1954	9 Aug. 1954
<i>Freyr</i>	P 804	24 Feb. 1954	21 July 1954	1 Dec. 1954
<i>Hadda</i>	P 805	24 Apr. 1954	2 Oct. 1954	3 Feb. 1955
<i>Hefring</i>	P 806	21 July 1954	1 Dec. 1954	23 Mar. 1955

Transfer
The patrol vessel *Queen Wilhelmina* (ex-U.S.S. PC 468), former United States submarine chaser of the PC type, was refitted at the Dok en Werf Mij, Wilton Fijenoord, Scheidan, early in 1963, commissioned on 26 July 1963 and lent to the Nigerian Navy as a training ship under the name *Ogoja*.

COASTAL MINESWEEPERS (Kustmijnnevigers)



AALSMEER 1962, Royal Netherlands Navy, Official



VENLO 1961, Royal Netherlands Navy, Official
32 "Dokkum" Class. Netherlands Wooden Type

AALSMEER M 811	GRIJPSKERK M 826	RHENEN* M 844
ABCOUDE M 810	HOGEZAND M 802	ROERMOND M 806
AXEL M 808	HOOGVEEN M 827	SITTARD M 830
DOKKUM M 801	LEERSUM* M 822	STAPHORST M 828
DRACHTEN M 812	LISSE* M 843	SNEEK M 824
DRUNEN M 818	LOCHEM M 816	STEENWIJK M 804
ELST M 829	MEPPEL M 814	VEERE M 842
GEMERT M 841	NAALDWIJK M 809	VENLO M 817
GIETEN M 805	NAARDEN M 823	WAALWIJK* M 807
GIETHOORN M 815	OMMEN M 813	WILDERVANK M 803
GOES M 819		WOERDEN* M 820

Displacement: 373 tons standard (417 tons full load)
Dimensions: 149½ (o.a.)×28×6½ feet
Guns: 2—40 mm.
Machinery: 2 Diesel engines. Fyenoord MAN or Werkspoor type (Netherlands). B.H.P.: 2,500=14 to 16 kts.
Complement: 38

General
Of 32 coastal minesweepers built in the Netherlands, 18 were offshore procurement (on U.S. account under the Mutual Defence Assistance Programme) but conform to the British design of costal minesweepers. The Netherlands built the remaining 14 minesweepers on her own account. All launched in 1954-56 and completed in 1955-57. Named after small towns in the Netherlands. *Leersum*, *Lisse*, *Rhenen*, *Waalwijk* and *Woerden* were re-rated as diving tenders in 1962-65. A photograph of *Dokkum* appears in the 1956-57 to 1961-62 editions.



BROUWERSHAVEN 1961, Royal Netherlands Navy, Official

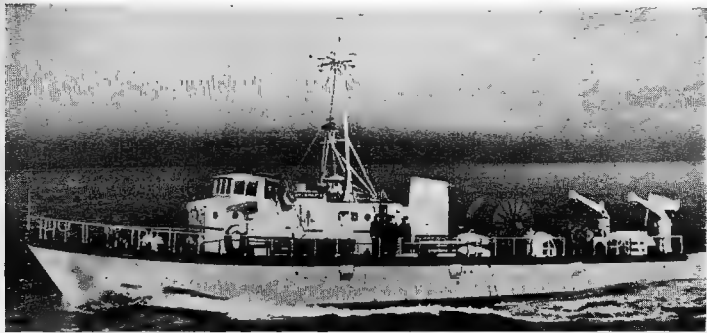
14 "Beemster" Class. U.S. AMS Wooden Type

BEEEMSTER (ex-AMS 105) M 845	BREUKELEN (ex-AMS 100) M 852
BOLSWARD (ex-AMS 109) M 846	BLARICUM (ex-AMS 112) M 853
BEDUM (ex-Beerta, ex-AMS 106) M 847	BRIELLE (ex-AMS 167) M 854
BEILEN (ex-AMS 110) M 848	BRESKENS (ex-AMS 148) M 855
BORCULO (ex-AMS 107) M 849	BRUINISSE (ex-AMS 168) M 856
BORNE (ex-AMS 108) M 850	BOXTEL (ex-AMS 149) M 857
BRUMMEN (ex-AMS 111) M 851	BROUWERSHAVEN (ex-AMS 150) M 858

Displacement: 330 tons standard, 364 tons normal (384 tons full load)
Dimensions: 138 (pp.), 144½ (o.a.)×27½×7½ feet
Guns: 2—20 mm. AA.
Machinery: 2 diesels. B.H.P.: 880=13.6 kts.
Complement: 37

General
Built in U.S.A. Non-magnetic MSC (ex-AMS) type. All transferred from the U.S.N. Completed and commissioned at New Orleans, Seattle and San Francisco in 1953-54. Named after small towns in the Netherlands.
A photograph of *Beemster* appears in the 1955-56 to 1960-61 editions.

INSHORE MINESWEEPERS
(Ondiepwater mijnnevgers)



BUSSEMAKER
1961. Royal Netherlands Navy, Official
16 "Van Straelen" Class

- ABLAS M 868
BUSSEMAKER M 869
CHOMPFF M 874
HOUTEPEN M 882
LACOMBLE M 870

MAHU M 880
SCHUILLING M 876
STAVERMAN M 881
VAN DER WEL M 878
VAN HAMEL M 871
VAN 'T HOFF M 879

VAN MOPPE M 873
VAN STRAELEN M 872
VAN VERSEDAAL M 877
VAN WEL GROENEVELD M 875
ZOMER M 883
- Displacement: 151 tons light (169 tons full load)
Dimensions: 90 (pp.), 99½ (o.a.)×18½×5½ feet
Guns: 1—20 mm. AA.
Machinery: Werkspoor diesels, 2 shafts. B.H.P.: 1,100=13 kts.
Complement: 12

General
The United States and the Netherlands signed an agreement for the construction of 16 inshore minesweepers for the Royal Netherlands Navy at a cost of \$16,900,000. Contracts were awarded as follows: 6 to Werf de Noord at Alblasserdam; 5 to N.V. de Arnhemse Scheepsbouw Maatschappij at Arnhem; and 5 to Amsterdamsche Scheepswerf G. de Vries Lentsch Jr. at Amsterdam.
Eight of these ships were built under the offshore procurement programme, with MDAP funds, and the remaining eight were paid for by the Royal Netherlands Navy.
All ordered in mid-1957. Built of wood and non-magnetic materials. The keel for *Atblas*, the first of this new type of small minesweepers was laid at the yard of Werf de Noord N.V. at Alblasserdam on 26 Feb. 1958, she was launched on 29 June 1959, started trials on 15 Jan. 1960 and was completed on 12 Mar. 1960. All the remaining ships of the class were laid down in 1958-61, launched in 1958-61 and commissioned in 1960-62.
The first nine ships built are named after naval and marine officers who distinguished themselves during the Second World War. The remaining seven are named after naval ratings who were also decorated posthumously.

ACCOMMODATION SHIPS (Logementschepen)

The following are also used as accommodation ships: A 880 *William van der Zaan*, former minesweeper support ship, former frigate, former minelayer, A 877 *Van Speijk* (ex-*Flores*), former gunboat, A 878 *Tromp*, A 879 *Jacob van Heemskerck*, former light cruisers, A 891 *Soemba*, former radar training ship, A 881 *Neptunus*, A 882 *Schorpioen*, A 884 *Buffel*, A 886 *Cornalis Drebbel*, A 887 *Haarlemmermeer* and A 888 *Hertog Hendrik* (old ships).
Disposal
Douwe Aukes, former minelayer converted into an accommodation and repair ship for minesweepers, was decommissioned on 1 Feb. 1962 and sold for scrap.
Disposals
Medusa, minesweeper support ship, former minelayer refitted as accommodation and repair ship, was stricken in June 1964.
Douwe Aukes, former minelayer converted into an accommodation and repair ship for minesweepers, was decommissioned on 1 Feb. 1962 and sold for scrap.

SUPPLY SHIPS (Voorraadschepen)

- ZUIDERKRUIS (ex-Cranston Victory)

Displacement: 7,190 tons light (11,688 tons full load)
Measurement: 9,376 tons gross
Dimensions: 455½ (o.a.)×62×20½ feet
Machinery: Westinghouse steam turbines. S.H.P.: 8,500=17 kts.
Oil fuel: 1,560 tons
- General**

"Victory ship type. Former merchant liner (emigrant carrier). Built in 1944 by the Oregon Shipbuilding Corp. at Portland, Oregon, U.S.A. Purchased by the Royal Netherlands Navy in Jan. 1963 for use as a store ship and conversion as accommodation ship for base staff at Den Helder. Pennant No. A 853.

I Ex-U.S. LST Type

- WOENDI (ex-*Steven van der Hagen*, ex-LST V, ex-LST 1034)

Displacement: 1,625 tons light, 3,770 tons standard (4,145 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×14 (max.) feet
Guns: 4—40 mm. AA., 6—20 mm. AA.
Machinery: Diesel, 2 shafts. B.H.P.: 1,800=11 kts.
Complement: 105
- General**

Built at Boston, Mass., in 1944. Seagoing store ship at Den Helder. Pennant No. A 832.

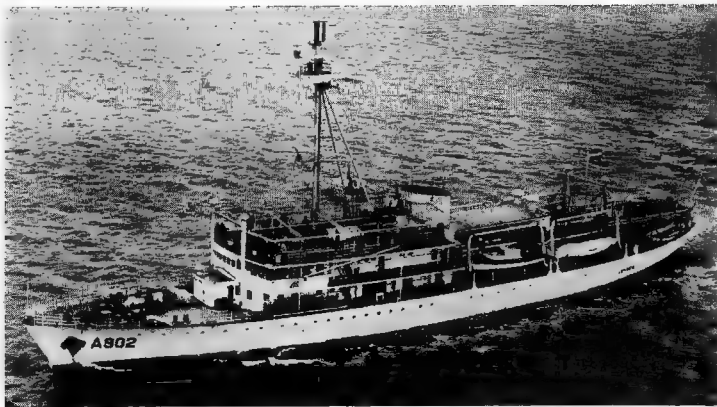
I Ex-British LST Type

- PELIKAAN (ex-H.M.S. *Thruster*, ex-LST)

Displacement: 2,840 tons light, 4,250 tons standard (6,538 tons full load)
Dimensions: 390×49×13 feet
Guns: 2—40 mm. AA., 10—20 mm. AA.
Machinery: Turbine. S.H.P.: 7,000=17 kts.
Oil fuel: 2,100 tons (max.)
Complement: 127
- General**

Built by Harland & Wolff Ltd., Belfast. Laid down on 31 July 1941. Launched on 24 Sep. 1942. Completed on 14 Mar. 1943. Purchased and taken over from Great Britain in 1947. Commissioned in the Royal Netherlands Navy in July 1948. Used as a store and accommodation ship at Den Helder. Pennant No. A 830. Photograph in the 1957-58 edition. Originally a sister ship of H.M.S. *Boxer*.

SURVEY SHIPS (Opnemingsvaartuigen)



- LUYMES

Displacement: 1,100 tons standard (1,538 tons full load)
Dimensions: 234½×35½×7 (max.) feet
Guns: 1—40 mm. AA., 2—20 mm. AA.
Machinery: 2 D.C.T., 1 Mousetrap
A/S weapons: Two 6-cycle, 4-stroke Stork diesels, 2 shafts.
B.H.P.: 2,000=15 kts.
Complement: 108
- 2 Sloop Type
SNELLIUS

General
Fitted for service in the tropics. A photograph of *Snellius* appears in the 1953-54 to 1959-60 editions.

Name	No.	Builders	Laid down	Launched	Launched
Luymes	A 902	Custo, Schiedam	4 Apr. 1949	21 Apr. 1951	4 May 1952
Snellius	A 907	P. Smit, Jr., Rotterdam	3 Jan. 1949	14 Apr. 1951	4 Feb. 1952



- ZEEFAKKEL

Displacement: 355 tons standard (384 tons full load)
Dimensions: 149 (o.a.) 24½×7 (max.) feet
Guns: 1—3 inch AA., 1—40 mm. AA.
Machinery: Two 8-cycle 4-stroke Smit M.A.N. diesels, 2 shafts.
B.H.P.: 640=12 kts.
Complement: 29
- I Patrol Type

General
This ship was originally ordered from Vuyk but her construction was transferred later to J. & K. Smit Kinderdijk where she was laid down in Sep. 1949, launched on 21 July 1950 and completed on 22 Mar. 1951. Commissioned on 23 Mar. 1951, for service in Dutch waters. Pennant No.: A 903.
Disposal
Hydrograaf, surveying vessel of the coastal type, was stricken from the active list in Oct. 1962, and transferred to the Sea Cadet Corps, Rotterdam as training ship.

4 Inshore Type

- DREG I

Displacement: 46 tons standard (48 tons full load)
Dimensions: 65½×15×5 feet
Machinery: H.P.: 120=9.5 kts.
Complement: 10
- DREG II

Displacement: 46 tons standard (48 tons full load)
Dimensions: 65½×15×5 feet
Machinery: H.P.: 120=9.5 kts.
Complement: 10
- DREG III

Displacement: 46 tons standard (48 tons full load)
Dimensions: 65½×15×5 feet
Machinery: H.P.: 120=9.5 kts.
Complement: 10
- DREG IV

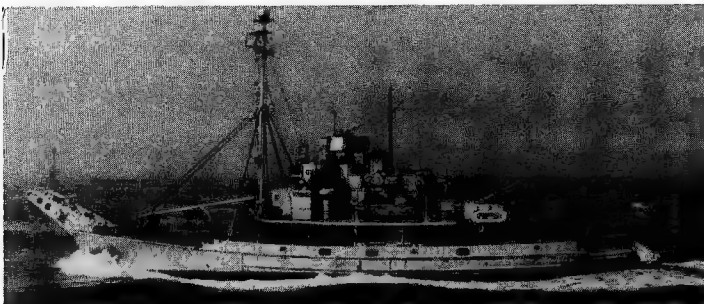
Displacement: 46 tons standard (48 tons full load)
Dimensions: 65½×15×5 feet
Machinery: H.P.: 120=9.5 kts.
Complement: 10
- General**

Dreg I and Dreg II were launched on 15 May 1950 and completed in July 1950. Pennant Nos. A 909, A 910, A 919 and A 920, respectively.

DIVING VESSELS (Duikvaartuigen)

General
The five diving vessels (ex-coastal minesweepers) of the U.S. BYMS type, *Born-diep* (ex-BYMS 2210), *Deurloo* (ex-BYMS 2254), *Marsdiep* (ex-BYMS 2038), *Vlietstroom* (ex-BYMS 2155) and *Zuiderdiep* (ex-BYMS 2048) were sold in 1962 and replaced by five coastal minesweepers of the "Dokkum" class, *LEERSUM*, *LISSE*, *RHENEN*, *WAALWIJK* and *WOERDEN* which are now acting as diving tenders.
The four small diving vessels *Keeten*, *Jakhals*, *Mostgat* and *Zijpe* were scrapped in 1962 and will be replaced by *Argus*, A 843, *Hijdra*, A 850, *Nautilus*, A 849 and *Triton*, A 848.
Disposals
The gate vessels *Abraham Crijnsen*, *Abraham van der Hulst*, *Jan van Gelder* and *Pieter Florisz*, former minesweepers used for storing net defence gear, were transferred early in 1962 to the various sea cadet corps as training ships.
The anti-submarine experimental ship *Paets van Troostwijck* (ex-*Sud III*, ex-*Istre*, ex-*Thor Jr.*), former German whaler used for submarine detection, was scrapped in Jan. 1963.
Weather Ships
The weather observation ships *Cirrus* (ex-U.S.S. *Ablene*, PF 58) and *Cumulus* (ex-U.S.S. *Forsyth*, PF 102), former patrol frigates, were replaced by a new weather observation ship, *Cumulus*, specially built for this work. In May 1962 her keel was laid at the yard of the N.V. Gebr. van der Werf at Deest (near Nijmegen). Launched on 22 Dec. 1962. Taken over on 18 Apr. 1963. Measurement: 1,974 tons gross. Dimensions: Length 233½ (o.a.), 203½ (pp.). Beam 41 feet, Draught 15 feet. Machinery: 6-cyl. Werkspoor diesel. B.H.P.: 1,400=12 kts. Crew 62. She is operated by the Ministry of Transport and manned by mercantile personnel.

DIVING TENDER (Duikwerkschip)



CERBERUS 1965, Royal Netherlands Navy, Official
CERBERUS
Displacement: 680 tons light, 780 tons standard (902 tons full load)
Dimensions: 165×33×10 feet
Guns: 1—3 inch, 4—20 mm. AA.
Machinery: Diesel electric, 1 shaft. B.H.P.: 1,500=12.8 kts.
Complement: 51
General
Former netlayer and boom defence vessel. Built by Bethlehem Steel Company, Staten Island. Launched in May 1952. Completed on 10 Nov. 1952. Transferred from the U.S. in Dec. 1952. Equipped as salvage vessel and diving tender in 1961 to replace *Hercules*, but she retains her netlaying capability. Pennant No. A 895.

LANDING CRAFT (Landingsvaartuigen)

L 9601 (ex-LT 5, ex-LCT 7031) **L 9606** (ex-LT 10, ex-LCT 7125)
Displacement: 438 tons standard (497 tons full load)
Machinery: Speed: 7 kts.
Complement: 20
General
Ex-British LCT (7) type. Officially re-rated as LST Type in 1958.



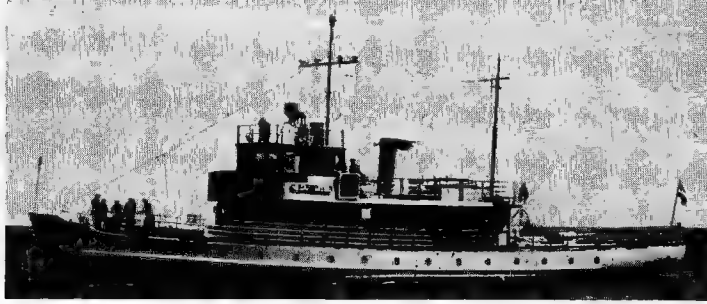
L 9609 1965, Royal Netherlands Navy, Official
L 9609 (ex-Kais)
Measurement: 468 tons gross
Dimensions: 137×36½×4½ feet
Guns: 4—20 mm. AA.
Machinery: 2 Kromhout diesel engines. B.H.P.: 540=8.5 kts.
Complement: 22
General
Built in 1954 by Arnheemsche Scheepsbouw Mij., Arnhem. Taken over from Nederl. Nieuw Guinea Petroleum Mij. on 4 June 1960. Stationed in the Netherlands Antilles.
L 9661 (ex-LU 1, ex-LCM 408) **L 9662** (ex-LU 2, ex-LCM 451)
General
Ex-LCM type. Officially re-rated as LCMS in 1958, and as LC in 1963.
L 9521 **L 9526**
General
Now officially rated as LCA Type. L 9505, L 9508, L 9509, L 9516 and L 9519 were scrapped in Jan. 1964.
There are also ten new landing craft made of plastic (polyester) L 9510-9515, 9517-9518, 9520 and 9522, 13.6 tons, 46½×11½×6 feet. Rolls Royce diesel, B.H.P.: 200=12 kts., all commissioned in 1962-63, except L 9520 in 1964.

FAST COMBAT SUPPORT SHIP



POOLSTER 1965, Royal Netherlands Navy, Official
POOLSTER
Displacement: 16,800 tons full load
Measurement: 10,000 tons deadweight
Dimensions: 515 (pp.), 552½ (o.a.)×66½×27 feet
Guns: 2—40 mm. AA.
Aircraft: Capacity: 5 helicopters (official complement 3 SH-34)
Machinery: Steam turbines. S.H.P.: 22,500=21 kts. (max.) service speed 18 kts.
General
A new fast fleet replacement tanker and supply ship (*Tanker, voorraadschip*). Built by Rotterdam Dry Dock Co. Laid down on 18 Sep. 1962. Launched on 16 Oct. 1963. Trials mid-1964. Commissioned on 10 Sep. 1964. Equipped with a helicopter deck aft.
There is also an immobile tanker, A 876 (ex-*Ena*), based at Den Helder.

TRAINING SHIPS (Opleidingsvaartuigen)



HENDRIK KARSEN 1961, Royal Netherlands Navy, Official
HENDRIK KARSEN (ex-Y 807, ex-RC 11, ex-*De Mok 1*)
Displacement: 172 tons standard (185 tons full load)
Dimensions: 137½ (o.a.) 114 (pp.)×20½×5½ feet
Guns: 2—20 mm. AA.
Machinery: 2 Kromhout diesels. B.H.P.: 180=11 kts.
Complement: 18
General
Built by Rijkswerf Willemsoord. Launched in 1939. Equipped with water monitors for fire fighting. Renamed *Hendrik Karsen* in 1954. Former midshipmen tender, Pennant No. A 857, now rated as a training ship, Pennant No. Y 8102.
HOBEIN (ex-*Doornbos*, ex-*Dornbüsch*)
Displacement: 132 tons
Dimensions: 92 (o.a.), 83½ (pp.)×19½×5½ feet
Guns: 1—40 mm. AA., 1—20 mm. AA.
Machinery: Diesel. B.H.P.: 250=8.5 kts.
Complement: 10
General
Formerly German. Used as a navigational training ship for midshipmen, Pennant No. Y 8101 (ex-P 882). Renamed *Hobein* in July 1952.
URANIA (ex-*Tromp*)
Displacement: 38 tons
Dimensions: 72×16½×10 feet
Machinery: Diesel. H.P.: 65
Complement: 15
General
Schooner, used for training in seamanship. Commissioned on 23 Apr. 1938. Pennant No. Y 8050.
(*van Kinsbergen*, former frigate, ex-gunboat, is now instruction ship at the Technical Training Centre in Amsterdam).

TENDER (Hulpschip)

MERCUUR
Displacement: 274 tons standard (290 tons full load)
Dimensions: 137½ (pp.), 140 (o.a.)×23×9 feet
Machinery: Diesel engine. B.H.P.: 375=12 kts. (see Notes)
Complement: 35
General
Mercuur was built by Rijkswerf Willemsoord. Launched on 26 Feb. 1936. Tender Torpedo School. Pennant No. A 829. Rebuilt in 1960, triple expansion replaced by a diesel engine, and guns removed. A second tender to the Torpedo School *VAN BOCHOVE*, was built under the 1961 Navy Estimates. A torpedo recovery vessel, she was ordered in Oct. 1961 from the Zaanlandsche Scheepsbouw Mij at Zaandam, launched on 20 July 1962 and commissioned in Aug. 1962; steel vessel with Schottelroepropeller, diesels. B.H.P.: 140; 97½×18½×6 feet, 15 tons. Pennant No. A 923.

TUGS (Sleepboten)

WAMANDAI
Displacement: 159 tons standard (185 tons full load)
Dimensions: 89½×21½×7½ feet
Guns: 2—20 mm. AA.
Machinery: Diesel. B.H.P.: 500=11 kts.
General
Built by Rijkswerf, Willemsoord, Den Helder. Launched on 28 May 1960. Equipped with salvage pumps and fire fighting equipment. Pennant No. A 870 (ex-Y 8035). Stationed in the Netherlands Antilles since 1964.
WAMBRAU
Displacement: 154 tons standard (184 tons full load)
Dimensions: 86½ (o.a.)×20½×7½ feet
Guns: 2—20 mm. AA.
Machinery: Werkspoor diesel and Kort nozzle. B.H.P.: 500=10.8 kts.
General
Built by Rijkswerf Willemsoord. Launched on 27 Aug. 1956. Completed on 8 Jan. 1957. Equipped with salvage pumps and fire fighting equipment. Stationed at Den Helder. Pennant No. A 871.
HERCULES (ex-*Walcheren XII*, ex-*Atlas*)
Displacement: 400 tons standard (440 tons full load)
Dimensions: 142×29×15 feet
Guns: 2—20 mm. AA.
Machinery: M.W.M. diesel. B.H.P.: 840=12 kts.
Complement: 20
General
Built as a tug for the German Air Force Flotilla. Launched by Nobiskrug Dockyard, Rendsburg, in 1944. Completed in Amsterdam in 1950. Fitted with pumps and salvage gear for use as salvage vessel and diving tender and commissioned on 18 Jan. 1951, but after *Cerberus* was equipped as salvage vessel she was used as a tug only. Pennant No. A 828. Photograph in the 1957-58 edition.
BERKEL **DINTEL** **DOMMEL** **IJSSEL**
Displacement: 139 tons standard (163 tons full load)
Dimensions: 82 (o.a.)×20½×7½ feet
Machinery: Werkspoor diesel and Kort nozzle. B.H.P.: 500
General
Harbour tugs built for the Royal Netherlands Navy at the yard of H. H. Bodewes, Millingen. They were specially designed for use at Den Helder. Completed on 27 Dec. 1956, 23 Jan. 1957, 27 Feb. 1957 and 27 Mar. 1957, respectively. Pennant Nos. Y 8037-Y 8040.
Disposals
The tugs *Orkaan* and A 847 (ex-MV 4, ex-*Hollandia*), former trawler and auxiliary minesweeper, were stricken in 1961. *Orkaan* was sold to Greece.

ROYAL NEW ZEALAND NAVY

Naval Board

Chairman: (Minister of Defence)
The Hon. Dean J. Eyre, M.P.

First Naval Member and Chief of Naval Staff:
Rear Admiral R. E. Washbourn, C.B.,
D.S.O., O.B.E.

Second Naval Member (Personnel):
Commodore B. E. Turner, O.B.E., D.S.C.

Third Naval Member (Supply, Transport and Works):
Commodore F. T. Healy
Deputy Secretary of Defence (Navy):
Mr. W. Hutchings.

Royal New Zealand Naval Liaison Officer,
London:
Captain Samuel F. Mercer, R.N.Z.N.

Naval & Air Attaché in Washington:
Air Commodore Albert S. Agar, A.F.C.

Personnel

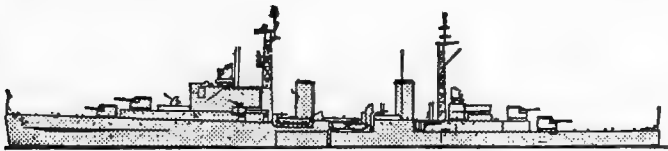
January 1960: 2,886 officers and ratings
January 1961: 2,865 officers and ratings
January 1962: 2,778 officers and ratings
January 1963: 2,785 officers and ratings
January 1964: 3,059 officers and ratings
January 1965: 2,818 officers and ratings

Mercantile Marine

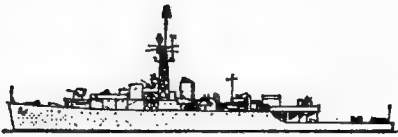
Lloyd's Register of Shipping:
146 vessels of 239,087 tons gross

Silhouettes

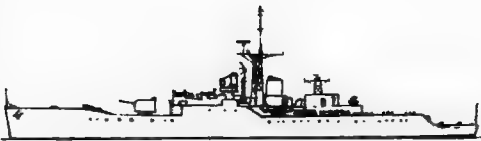
Scale: 150 ft.=1 inch



ROYALIST



"LOCH" Class



OTAGO, TARANAKI



LACHLAN

LIGHT CRUISER



ROYALIST

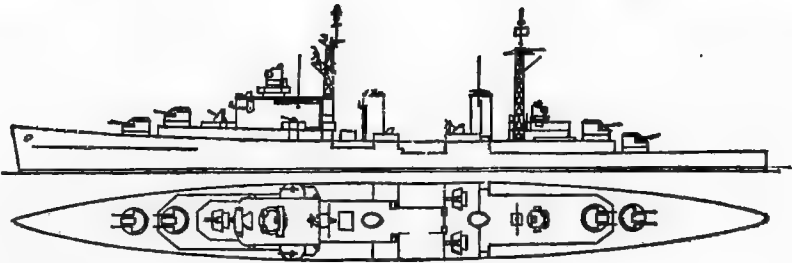
1963, Royal New Zealand Navy, Official

I Improved, "Dido" Class

ROYALIST

Pennant No.:	C 89
Builders:	Scotts' S.B. & Eng. Co. Ltd., Greenock
Laid down:	21 May 1940
Launched:	30 May 1942
Completed:	10 Sep. 1943
Displacement:	5,900 tons standard (7,360 tons full load)
Dimensions:	Length: 512 (o.a.) feet. Beam: 52 feet. Draught: 15 (mean), 18; (max.) feet
Guns:	8—5.25 inch d.p., 8—40 mm. Bofors AA.
Armour:	2" side, 2" turrets
Machinery:	Parsons single reduction geared turbines. 4 shafts. S.H.P.: 62,000
Boilers:	32 kts: 4 Admiralty 3-drum type
Complement:	550

General
Built under the Second World War Estimates. Lent by Great Britain to the New Zealand Government, who pay for her annual maintenance. She was reconstructed and modernised in Great Britain and completed her refit in 1956, being recommissioned on 10 Apr. 1956 at H.M. Dockyard, Devonport. She was formally handed over to the Royal New Zealand Navy on 9 July 1956, and left for New Zealand late in 1956, arriving at Auckland in



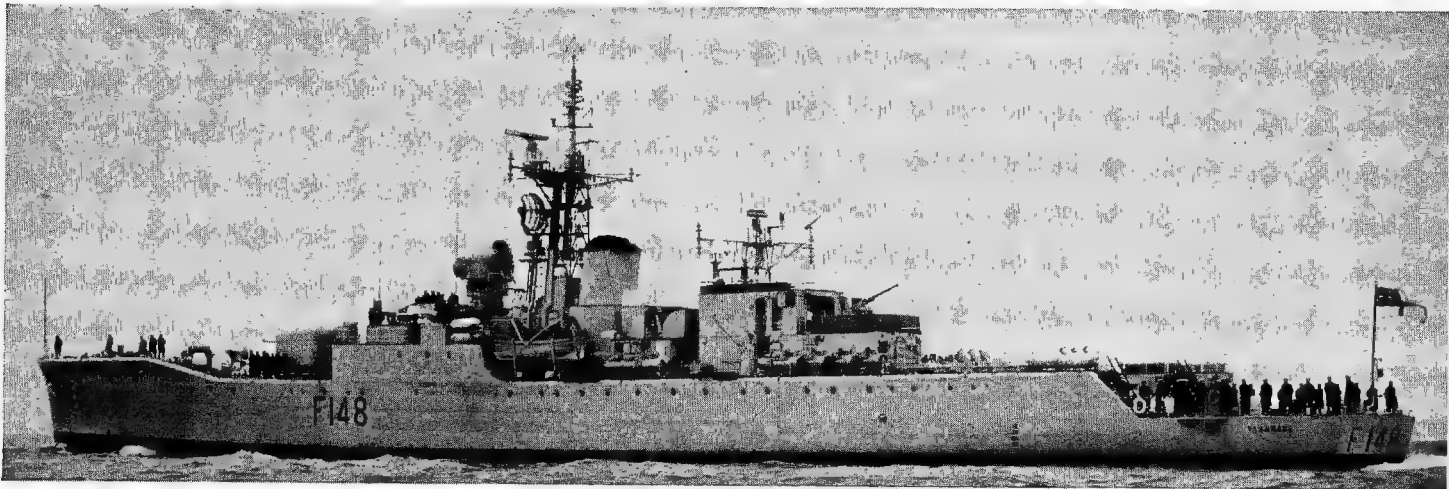
Dec. 1956. She had a new bridge of rounded form, new lattice masts, the then latest gun direction equipment and air and surface radar. She was the flagship of the Royal New Zealand Navy, but now wears the pennant of the Senior Officer Afloat. Originally a sister ship of *Bahr* (ex-H.M.S. *Diadem*) in the Pakistan Navy.

Drawing
Port elevation and plan. Reconstructed with two lattice masts. Scale: 128 feet=1 inch.

Photographs
A large port bow surface view appears in the 1960-61 to 1962-63 editions, a large port bow oblique view in the 1957-58 to 1959-60 editions, and a port broadside view in the 1956-57 edition.

Disposal
Sister ship *Black Prince* reverted to Royal Navy control in Dec. 1961 and was scrapped in Japan in May 1962.

ANTI-SUBMARINE FRIGATES



TARANAKI (port quarter view showing superstructure and Limbos aft)

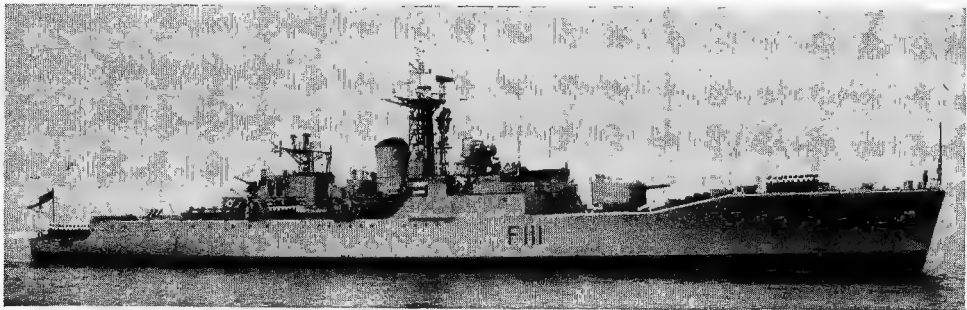
1961, Wright & Logan

I "Leander" Class. Improved Type 12
WAIKATO

General
It was announced on 14 June 1963 by the High Commission for New Zealand in London that a "Leander" class frigate had been ordered from Harland & Wolff, Ltd., Belfast, for the Royal New Zealand Navy. The ship was launched on 18 Feb. 1965. For full particulars see under "Leander" class, United Kingdom section, page 280.

2 "Rothesay" Class. Type 12
(1st Rate Anti-Submarine Quality Type)

Name: OTAGO (ex-Hastings) TARANAKI
Pen. No. F 111 F 148
Builders: John I. Thornycroft & Co. Ltd., Woolston, Southampton J. Samuel White & Co. Ltd., Isle of Wight
Launched: 11 Dec. 1958 19 Aug. 1959
Completed: 22 June 1960 28 Mar. 1961
Displacement: 2,144 tons standard (2,557 tons full load)
Dimensions: 360 (pp.), 370 (o.a.)×41×12 feet
Guns: 2—4.5 inch (1 twin turret)
Guided weapons: 1 quadruple launcher for "Sea-cat" anti-aircraft missiles



OTAGO

1960, Wright & Logan

Tubes: 12—21 inch (8 single A/S, two twin)
A/S weapons: 2 Limbo three-barrelled depth charge mortars
Machinery: 2 sets double reduction geared steam turbines, 2 shafts. S.H.P.: 30,430—over 30 kts.
Boilers: 2 Babcock & Wilcox
Complement: 219

General
Taranaki was ordered as a "Rothesay" class anti-submarine frigate (announced by J. Samuel White & Co. on 22 Feb. 1957). Otago was ordered earlier (officially stated on 26 Feb. 1957 that New Zealand had taken over the contract for the anti-submarine frigate Hastings, originally ordered from John I. Thornycroft & Co. in Feb 1956 for the Royal Navy). Both vessels are generally similar to those in the Royal Navy, but were modified to suit New Zealand conditions.

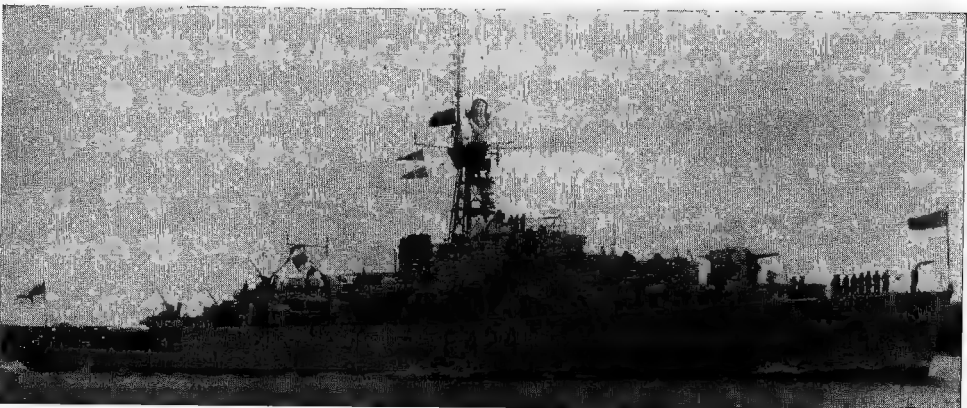
3 "Loch" Class
2nd Rate (Anti-Submarine Escort Type)

HAWEA (ex-H.M.S. Loch Eck)
PUKAKI (ex-H.M.S. Loch Achanalt, ex-Naver)
ROTOITI (ex-H.M.S. Loch Katrine)
Displacement: 1,435 tons standard (2,260 tons full load)
Dimensions: 286 (pp.), 307½ (o.a.)×38½×14½ (max.) feet
Guns: 1—4 inch, 6—20 mm. AA.
A/S weapons: 2 Squid triple-barrelled depth charge mortars
Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500—19.5 kts.
Boilers: 2 Admiralty 3-drum type
Oil fuel: 724 tons
Complement: 114

General
Purchased from Great Britain in 1948, and renamed after New Zealand lakes.

Photographs
A photograph of Rotoiti appears in the 1958-59 to 1962-63 editions, and of Hawea in the 1951-52 to 1957-58 editions.

Disposals
Of three sister ships, Taupo and Tutira were sold for scrap on 15 Dec. 1961, and Kaniere is in extended reserve and used as an alongside training ship.



PUKAKI

1962, courtesy Mr. J. C. Jeremy

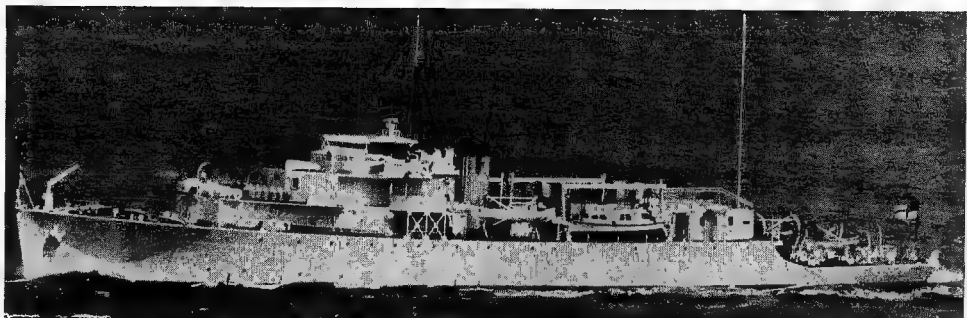
Name	Pen. No.	Builders	Laid down	Launched	Completed
Hawea	F 422	Smith's Dock Co. Ltd., South Bank-on-Tees	25 Oct. 1943	25 Apr. 1944	7 Nov. 1944
Pukaki	F 424	Henry Robb, Ltd., Leith	14 Sep. 1943	23 Mar. 1944	11 Aug. 1944
Rotoiti	F 625	Henry Robb, Ltd., Leith	31 Dec. 1943	21 Aug. 1944	29 Dec. 1944

SURVEY SHIP (Ex-Frigate)

I "River" Class

LACHLAN
Pennant No.: F 364
Builders: More's Dock, Sydney
Launched: 25 Mar. 1944
Displacement: 1,420 tons standard (2,220 tons full load)
Dimensions: 301½×36½×12 feet
Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500—20 kts.
Boilers: 2 Admiralty 3-drum type
Complement: 140

General
Former Australian "River" class frigate. On loan until she was purchased outright in 1962. She is employed surveying the New Zealand coast. Forecastle deck extended aft from the shelter deck, to the quarter deck. Guns removed on conversion for survey duties.



LACHLAN (forecastle deck extended aft)

1964, Royal New Zealand Navy, Official

ESCORT MINESWEEPERS

4 "Bathurst" Class

ECHUCA INVERELL KIAMA STAWELL

Displacement: 790 tons standard (1,025 tons full load)
Dimensions: 186 (o.a.) 162 (pp.)×31×9½ feet
Guns: 1—4 inch, 1—40 mm. AA.
Machinery: Triple expansion; 2 shafts. I.H.P.: 1,800=15 kts.
Boilers: 2 Admiralty 3-drum small tube
Complement: 85

General
These four vessels were given to New Zealand by Australia in 1952. All are now in reserve.

Name	Pen. No.	Builders
Echuca	M 252	Williamstown Dockyard, Melbourne
Inverell	M 233	Mort's Dock, Sydney
Kiama	M 353	Evans Deakins, Brisbane
Stawell	M 348	Williamstown Dockyard, Melbourne

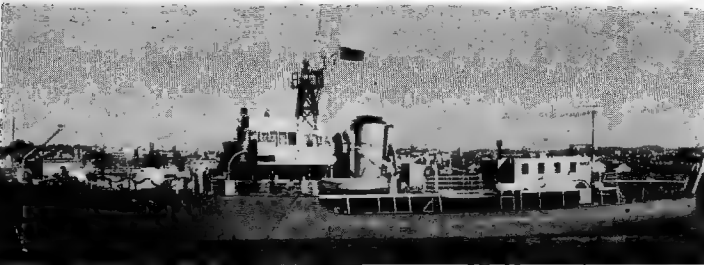
Name	Laid down	Launched	Completed
Echuca	22 Feb. 1941	17 Jan. 1942	17 Jan. 1943
Inverell	7 Dec. 1941	2 May 1942	2 May 1943
Kiama	2 Nov. 1942	3 July 1943	26 Jan. 1944
Stawell	18 June 1942	3 Apr. 1943	7 Aug. 1943



STAWELL

1956, Royal New Zealand Navy, Official

PATROL VESSEL



TUI 1965, Royal New Zealand Navy, Official

I "Bird" Class (Corvette type)

Displacement: 600 tons standard (825 tons full load)
Dimensions: 156×30×14 feet
Guns: 1—4 inch, 1—2 pdr.
Machinery: Triple expansion. I.H.P.: 1,000=14 kts.
Boilers: 1 cylindrical
Complement: 55

General
Anti-submarine and Minesweeping trawler of the corvette type. Built by Henry Robb Ltd., Leith. Laid down on 19 Mar. 1940. Launched on 26 Aug. 1941. Completed on 5 Dec. 1941. Engined by Plenty & Son. Commissioned as a Fleet Auxiliary for duties in Oceanographical Research.
Disposal
Sister ship Kiwi was sold in 1962, and broken up in Auckland in 1965.

SEAWARD PATROL CRAFT



PAEA 1963, Royal New Zealand Navy, Official

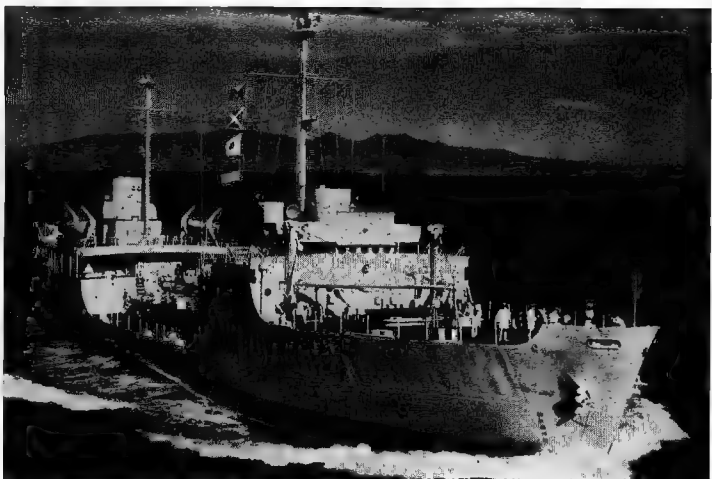
12 HDML Type

IRIRANGI (SDML 3554, ex-Q 1192)	OLPHERT (SDML 3562, ex-Q 1190)
MAKO (SDML 3551, ex-Q 1183)	TAKAPU (SDML 3556, ex-Q 1188)
MANGA (SDML 3567, ex-Q 1185)	TAMAKI (SDML 3553)
PAEA (SDML 3552, ex-Q 1184)	TARAPUNGA (SDML 3566, ex-Q 1387)
PEGASUS (SDML 3563, ex-Q 1348)	TOROA (SDML 3564, ex-Q 1350)
NGPONA (SDML 3555, ex-Viti, ex-Q 1193)	WAKEFIELD (SDML 3565, ex-Q 1197)

Displacement: 46 tons standard (54 tons full load)
Dimensions: 72×16×5½ feet
Guns: 1—20 mm. AA., several M.G. (not fitted at present)
Machinery: Diesel. 2 shafts. B.H.P.: 320=12 kts.
Complement: 12

General
Originally known as Harbour Defence Motor Launches. All built in various yards in the United States and Canada and shipped to New Zealand. SDMLs Takapu and Tarapunga are commissioned as surveying MLs, and operate with Lachlan. SDMLs Mako, Manga and Paea have been converted with lattice masts surmounted by a radar aerial, and are employed on fishery protection duties. SDML 3565 is American built. A photograph of Mako appears in the 1958-59 to 1962-63 editions.

ANTARCTIC SUPPORT SHIP



ENDEAVOUR 1963, Royal New Zealand Navy, Official

ENDÉAVOUR (ex-U.S.S. Namakagon, AOG 53)

Displacement: 1,850 tons light (4,335 tons full load)
Dimensions: 292 (w.l.), 310½ (o.a.)×48½×15½ feet
Machinery: G.M. diesels. 2 shafts. B.H.P.: 3,300=14 kts.
Complement: 70 officers and ratings

General
Former U.S. "Patapsco" class petrol carrier. Built by Cargill, Inc., Savage, Minn. Laid down on 1 Aug. 1944. Launched on 4 Nov. 1944. Refitted and strengthened for service in ice and transferred on loan to the Royal New Zealand Navy in Oct. 1962 under the Military Aid Program and re-named Endeavour. Pennant No. A 184. Disposal of former Antarctic Support Ship
H.M.N.Z.S. Endeavour (ex-M.V. John Biscoe, ex-H.M.S. Pretext, ex-U.S.S. AN 76), former netlayer, boom defence vessel, survey ship, and Antarctic support ship in turn, was declared surplus and sold in 1961.

TENDERS

ARATAKI MANAWANUI
General
Steel tugs. Length: 75 feet. Diesel. Arataki is used as a dockyard tug and Manawanui as a diving tender.

Disposals
The lighthouse tender Hauraki (ex-Endeavour) was officially deleted from the list in 1964.
Of the two naval stores carriers, Lander I was officially deleted from the list in 1964, and Coastguard was sold as a fishing boat on 7 July 1961.
The two former Fairmile "B" Type motor launches Maori and Phifemel, converted to local naval transports and passenger harbour craft, were officially stricken from the list in 1964.

NICARAGUA

The Coast Guard is under the authority of the National Guard. It is reported to consist of six wooden patrol boats, four 90 feet and two about 80 feet long. There is also a former patrol boat 75 feet, wooden, built in 1925, used for training. There are small patrol boats on the east and west coasts to prevent smuggling.

NIGERIA

Administration

Commodore Commanding The Nigerian Navy:
Commodore Joseph Etim Akinwale Wey, N.N.

Personnel

Upwards of 80 officers and 800 ratings in 1965; but this figure is to be increased as opportunity offers

FRIGATE

I New Construction

NIGERIA

Displacement: 1,800 tons standard (2,000 tons full load)
Dimensions: 355×37×11 feet
Guns: 2—4 inch d.p. (twin mounting) remotely controlled
A/S weapons: 1 triple-barrelled depth charge mortar with fire control
Machinery: 4 MAN diesels, 2 shafts, B.H.P.: 15,500=26 kts.
Complement: 216 officers and ratings

General

Under construction in the Netherlands. To cost £3,500,000. Scheduled to be completed in 1966.

Nomenclature

In 1965 the name of this vessel was altered to *Nigeria* from the previous provisional name *Republic* suggested in 1964, thus reverting to the name originally considered in 1963 (see 1963-64 edition).

Disposal of Escort Vessel

The escort vessel *Nigeria*, formerly the British "Algerine" class ocean minesweeper, H.M.S. *Hare*, transferred to the Nigerian Navy on 21 July 1959, was scrapped in Oct. 1962, it was officially stated. (She was surveyed in H.M. Dockyard, Chatham, in May-June 1962, but was found to be beyond economical repair of boiler defects, etc.)

PATROL VESSEL



OGOJA 1965, Nigerian Navy, Official

I PC Type

OGOJA (ex-Queen Wilhelmina, ex-U.S.S. PC 468)

Displacement: 320 tons standard (413 tons full load)
Dimensions: 165 (w.l.), 173½ (o.a.)×23×6½ feet
Guns: 1—3 inch d.p., 1—40 mm. AA., 5—20 mm. AA.
Machinery: Fairbanks diesel, 2 shafts. B.H.P.: 2,880=20 kts.
Oil fuel: 60 tons
Radius: 5,000 miles at 10 kts.
Complement: 70

General

Whilst the new frigate above is being built this old patrol vessel is lent by the Royal Netherlands Navy to the Nigerian Navy. The former United States submarine chaser was built by Geo. Lawley & Sons, Neponset, Mass., having been launched on 30 Apr. 1942.

SEAWARD DEFENCE BOAT



ENUGU 1965, courtesy Dr. Giorgio Arra

I "Ford" Type

ENUGU

Displacement: 120 tons standard (160 tons full load)
Dimensions: 110 (pp.), 117½ (o.a.)×20×5 feet
Guns: 1—40 mm. Bofors AA.
A/S weapons: 1 depth charge mortar aft, D.C. rails and D.C.
Machinery: Davey Paxman diesels, Foden engine on centre shaft.
B.H.P.: 1,100=18 kts. (max.), 15 kts. sea speed
Complement: 26 (4 officers and 22 ratings)

General

The first warship built for the Nigerian Navy. Ordered from Camper and Nicholson's, Gosport, in 1960. Completed on 14 Dec. 1961 (accepted from builders). Sailed from Portsmouth for Nigeria on 10 Apr. 1962. Fitted with Vosper roll damping fins.

Disposal

The seaward defence motor launch *Kaduna* (ex-H.M.S. SDML 3515) P 07 was officially deleted from the Navy List in 1965.

MINESWEEPING MOTOR LAUNCHES



SAPELE 1964, Nigerian Navy, Official

2 Fairmile "B" Type

CALABAR (ex-MSML 2223)

SAPELE (ex-MSML 2217)

Displacement: 85 tons
Dimensions: 112 (o.a.)×18½×5 feet
Guns: 2—20 mm. AA. (twin mounting)
Machinery: 2 Hall Scott Defender engines
B.H.P.: 1,200=20 kts. Sea speed 15.5 kts.
Complement: 16 to 18

General

Purchased from the Royal Navy in 1959. Pennant Nos. P 08 and P 09, respectively. A photograph of *Calabar* appears in the 1963-64 edition.

LANDING CRAFT



LOKOJA 1965, Nigerian Navy, Official

I L.C.T. (4) Type

LOKOJA (ex-LCT (4) 1312)

Displacement: 350 tons standard (586 tons full load)
Dimensions: 187½×38½×4½ feet
Guns: 2—20 mm. AA.
Machinery: 2 Paxman diesels. B.H.P.: 920=10 kts.
Complement: 13

General

Purchased from the Royal Navy in 1959. Allocated the name *Lokoja* in 1961.

SURVEYING VESSELS

PATHFINDER P 06

Measurement: 544 tons gross
Dimensions: 154½×27×11 feet
Guns: 1—40 mm. AA.
Machinery: 2 sets triple expansion engines. I.H.P.: 200=8 kts.
Complement: 42

General

Built by J. Samuel White & Co. Ltd., Cowes, Isle of Wight, in 1954.

PENELOPE P 11

Measurement: 79 tons gross
Dimensions: 79½×7½×4½ feet
Machinery: 2 Gardner diesels. Speed 10 kts.
Complement: 15

General

Built by Aldous Successors, Brightlingsea in 1959. Used for local survey duties.

CHALLENGER P 10

Measurement: 114 tons gross
Dimensions: 110½×18½×5 feet
Guns: 1—40 mm. AA. Bofors AA.
Machinery: 3 Gleniffer diesels. Speed 13 kts.

General

Built by Aldous Successors, Brightlingsea in 1955. Customs preventive duties.

PRESIDENTIAL YACHT

VALIANT

Measurement: 280 tons gross
Dimensions: 135½ (o.a.)×29×4½ feet
Guns: 2—3 pdr. saluting
Machinery: 2 sets 3-cylinder triple expansion. I.H.P.: 450=9 kts.
Complement: 27

General

A shallow draught yacht used by His Excellency The President for touring in the inland waterways of Nigeria. Built by Yarrow & Co. Ltd., Scotstoun, Glasgow. Formerly rated as *Despatch Vessel*, but officially reclassified as "President's River Yacht" in 1965.

ROYAL NORWEGIAN NAVY

Administration

Minister of Defence: Mr. Gudmund Harlem.
Permanent Under-Secretary: Mr. Jacob Modalsli.
Commander-in-Chief:
Vice-Admiral Aimar Sörenssen, R.No.N.
Chief of Naval Staff:
Rear-Admiral Dagfinn Ellif Kjeholt, R.No.N.
Commander Coastal Fleet:
Commodore Sjur Østervold, D.S.C., R.No.N.
Chief of Staff (Operations):
Commodore Sigurd Valvatne, D.S.O., D.S.C., R.No.N.

Defence Attaché in London:
Colonel Ole Tobias Mehn-Andersen, R.No.A.F.
Assistant Defence Attaché in London:
Commander Julius Johan Meyer, R.No.N.
Naval Attaché in Washington:
Rear-Admiral Ragnvald A. Tamber, R.No.N.

New Construction Programme

50 new warships are being built, comprising five destroyer escorts, 15 submarines, two patrol craft, eight torpedo boats and 20 gunboats.
Half the cost is being borne by Norway while the other half is being paid by the United States.
All the ships are being built in Norway except the submarines, which are being built in Germany under a special agreement.

The total number of warships provided for by 1968 will be 93.
The plan involves a considerable increase in the numbers of officers and ratings to 7,300 (1,200 officers, 6,100 ratings).

Ships

Norwegian warships are referred to officially with the prefix K.N.M., equivalent to H.M.S.

Personnel

1965: 6,000 officers and ratings.
1964: 6,300 officers and ratings.
1963: 6,300 officers and ratings.
1962: 5,200 officers and ratings.

Since Mar. 1959 the suffix "R.No.N." has been used instead of "R.Nor.N."

Mercantile Marine

Lloyd's Register of Shipping:
2,732 ships of 14,477,112 tons gross

Silhouettes

Scale: 150 ft.=1 inch.



BERGEN, D 303, STAVANGER



HAUGESUND, TROMSØ



HAAKON VII



OSLO (new)



DRAUG



BRAGE, GOR, TYR, ULLER

DESTROYERS

3 Ex-British "Cr" Class

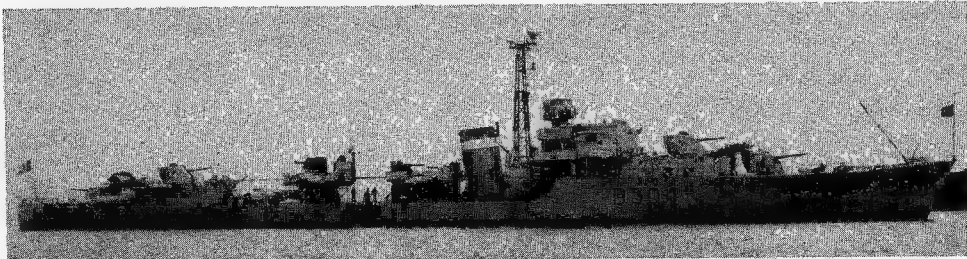
BERGEN (ex-Cromwell). D 303 (ex-Oslo, ex-Crown)
ex-Cretan) STAVANGER (ex-Crystal)

Displacement: Bergen and D 303: 1,710 tons standard, Stavanger, 1,786 tons standard (2,640 tons full load)
Dimensions: 362½×35½×16 feet
Guns: 4—4.5 inch d.p., 6—40 mm. AA.
Tubes: 4—21 inch (quadrupled) see Anti-Submarine notes
A/S weapons: 4 D.C.T. ("Terne" in Bergen)
Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 40,000=34 kts. (trial speeds 31.5 kts. first two, 32.8 Stavanger). Sea speed 32 kts.
Bollers: 2, of 3-drum type
Oil fuel: 580 tons
Radius: 2,800 miles at 20 kts.
Complement: 241

General
Former "Cr" class destroyers purchased from Great Britain in 1946. Of entirely welded construction. Oslo, which was fitted as the squadron leader, was decommissioned on 2 Apr. 1962. In Jan. 1964 she was transferred to the Reserve List as Pen. No. D 303, her name having been given to the first of the new frigates being built under the new construction programme.

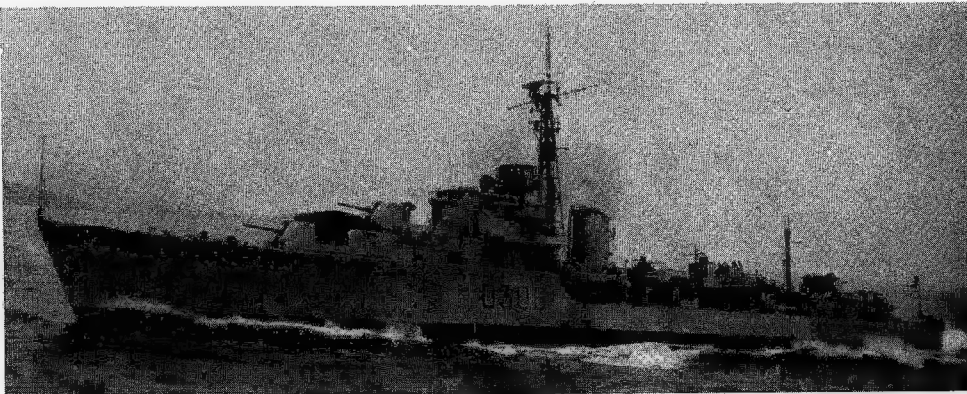
Anti-Submarine
The torpedo tubes in Bergen were removed and replaced by "Terne" ASW system in 1964.
Photographs
Photographs of Oslo, D 303, appear in the 1959-60 edition, and 1961-62 to 1963-64 editions.

Disposals
The former British destroyer Trondheim (ex-H.M.S. Croziers) of the "Cr" Class, purchased from Great Britain in 1946, was removed from the Navy List on 1 May 1961.
The former British destroyer Stord (ex-H.M.S. Success) of the "S" class, purchased from Great Britain in 1946, was stricken from the Navy List in 1959.



BERGEN

Royal Norwegian Navy, Official



STAVANGER

Royal Norwegian Navy, Official

Name	Pen. Nos.	Builders	Laid down	Launched	Completed
Bergen	D 304	Scotts' S.B. & Eng. Co. Ltd., Greenock	24 Nov. 1943	6 Aug. 1945	16 Sep. 1946
Ex-Oslo	D 303	Scotts' S.B. & Eng. Co. Ltd., Greenock	16 Jan. 1944	19 Dec. 1945	17 Apr. 1947
Stavanger	D 306	Yarrow & Co. Ltd., Scotstoun, Glasgow	13 Jan. 1944	12 Feb. 1945	6 Feb. 1946

FRIGATES

5 New Construction
Destroyer Escort Type
"Oslo" Class

BERGEN F 301	OSLO F 300
NARVIK F 304	STAVANGER F 303
	TRONDHEIM F 302
Displacement:	1,450 tons standard (1,880 tons full load) revised official figure
Dimensions:	317×36½×12 feet (revised official figures)
Guns:	4—3 inch (2 twin mounts)
A/S weapons:	"Terne" ASW rocket
Machinery:	De Laval Ljungstrom double reduction geared turbines. S.H.P.: 20,000=25 kts.
Complement:	150 (revised official figure)

General

Under the new naval programme accepted by the Norwegian "Storting" (Parliament) late in 1960, and which is being implemented over a five-year period, five new destroyer escorts are being built.

All the ships are being constructed in Norwegian shipyards, but half the cost is being borne by Norway and the other half is being paid by the United States.

The design of these ships is similar to that of the "Dealey" class destroyer escorts in the United States Navy. They have traditional Norwegian destroyer or



OSLO (model)

1964, Royal Norwegian Navy, Official

torpedo boat names.

Oslo, built at the Norwegian Admiralty Dockyard (Marinens Hovedverft) at Horten, was launched on 17 Jan. 1964. Trondheim on 4 Sep. 1964, and Narvik on 8 Jan. 1965.

The turbines, of a new type, and auxiliary machinery, were all built by De Laval Ljungstrom, Sweden, at the

company's works in Stockholm—Nacka.

Disposal

The former British escort destroyer Narvik (ex-H.M.S. Glaisdale) of the "Hunt" class, Type III, purchased from Great Britain in 1946, see full details and photograph in the 1960-61 edition, was removed from the Navy List on 1 May 1961.

2 Ex-British "Hunt" Class, Type II
(Escort Destroyers)

HAUGESUND (ex-Beaufort)		TROMSØ (ex-Zetland)	
Name:	Haugesund	Tromsø	
Pen. No.:	F 312	F 311	
Builders:	Cammell Laird & Co. Ltd., Birkenhead	Yarrow & Co. Ltd., Scotstoun, Glasgow	
Laid down:	17 July 1940	2 Oct. 1940	
Launched:	9 June 1941	7 Mar. 1942	
Completed:	3 Nov. 1941	27 June 1942	

Displacement:	1,217 tons standard (1,554 tons full load)
Dimensions:	280 (o.a.)×31½×13 (max.) feet
Guns:	4—4 inch AA., 4—40 mm. AA.
A/S weapons:	2 Squids in "X" position (replaces "X" guns)
Machinery:	Parsons geared turbines. 2 shafts. S.H.P.: 19,000=27 kts. designed (sea speed 26 kts.)
Boilers:	2, of 3-drum type
Oil fuel:	280 tons
Radius:	3,700 miles at 14 kts.
Complement:	198

General

Former British "Hunt" class, Type II Escort destroyers, later re-rated as frigates. Transferred by Great Britain at the end of 1952 on loan to the Royal Norwegian Navy for four years and sold outright to Norway in July 1956. Refitted with lattice mast and 2 squids in place of "X" twin gun mountings in 1954. Allocated F, instead of D, pennant numbers, in 1956.

Disposals

The former British escort destroyer Arendal (ex-H.M.S. Badsworth) of the "Hunt" class, Type II, purchased from Great Britain in 1946, was removed from the Navy List on 1 May 1961.

Disposals of Frigates of Other Classes

The four units of the "Sleipner" class, Balder, Gyller, Odin and Tor, originally torpedo boats but later re-rated and converted into escorts were stricken from the Navy List in 1959. Sister ship Sleipner was sold.

The three "Flower" class frigates, Andenes, Nordkyn and Sörøy, were stricken from the Navy List in 1956 and sold to whaling companies.



HAUGESUND

Added 1961, Royal Norwegian Navy, Official



TROMSØ

1958, Skyfotos

3 Modernised Canadian "River" Class

DRAUG (ex-H.M.C.S. Penetang)
HORTEN (ex-Troll, ex-H.M.C.S. Prestonian)
VALKYRIEN (ex-Gorm, ex-H.M.C.S. Toronto)

Displacement:	1,570 tons standard (2,240 tons full load)
Dimensions:	301½×36½×16 feet
Guns:	2—4 inch, 2—40 mm. AA.
Machinery:	Triple-expansion reciprocating. 2 shafts. I.H.P.: 5,500=19 kts.
Boilers:	2 Admiralty three-drum type
Oil fuel:	720 tons
Radius:	9,500 miles at 12 kts.
Complement:	140 (82 as depot ships)

General

Originally similar to the British "River" class, but modernised in 1953-54 for anti-submarine warfare and reconstructed with flush deck. Lent to Norway by Canada in 1956, Draug being taken over on 25 Jan. 1956, the other two in Mar. 1956. Transferred to Norway outright early in 1959. Draug is scheduled to be scrapped in 1965.

Conversions

Garm was converted into a Depot Ship for Torpedo Boats and renamed Valkyrien in 1964, replacing the former depot ship Valkyrien. Troll was converted into a Depot Ship for Submarines and renamed Horten in 1965, replacing the former depot ship Sarpen.



HORTEN (ex-Troll)

1957, Royal Norwegian Navy, Official

Name	Pen. No.	Builders	Launched	Completed	Transferred
Draug	F 313	Davie Shipbuilding Co., Lauzon, P.Q.	6 July 1944	19 Oct. 1944	25 Jan. 1956
Horten	A 530 (ex-F 314)	Davie Shipbuilding Co., Lauzon, P.Q.	22 June 1944	13 Sep. 1944	March 1956
Valkyrien	A 535 (ex-F 315)	Davie Shipbuilding Co., Lauzon, P.Q.	18 Sep. 1943	6 May 1944	March 1956

SUBMARINES (Undervannsbater)

15 New Construction Coastal Type
"Kobben" Class

Kaura S 315	SKlinna S 305	Ula S 300
Kinn S 316	SKolpen S 306	Uthaug S 304
Kobben S 318	STadt S 307	UTsira S 301
Kunna S 319	STord S 308	UTstein S 302
Kya S 317	SVenner S 309	UTvaer S 303

Displacement: 350 tons standard, 472 tons submerged
Dimensions: 148½×15 feet
Tubes: 8—21 inch (bow)
Machinery: Diesels, Electric motors, 1 shaft.
B.H.P.: 1,200=17 kts. submerged
Complement: 17

General
It was announced in July 1959 that the United States and Norway were to share equally the cost of these coastal submarines ordered under a modernisation programme.
All 15 boats were built by Rhein Stahl-Nordseewerke in Emden, West Germany. Of the same type as the German U 4 class but with somewhat stronger hulls to dive deeper. To be delivered in 1964-67.

Nomenclature
The new coastal submarines have been given names perpetuating the names of those submarines which have recently served in the Royal Norwegian Navy, but have been discarded (see Disposals below) and some new names.

Name	Launched	Completed
Kaura	16 Oct. 1964	
Kinn	30 Nov. 1963	8 Apr. 1964
Kobben	25 Apr. 1964	17 Aug. 1964
Kunna	16 July 1964	1 Oct. 1964
Kya	20 Feb. 1964	15 June 1964
Ula	19 Dec. 1964	

Transfer
The new German coastal submarine U 3, which was lent to the Royal Norwegian Navy in 1962 for training purposes and temporarily named *Kobben* with the pennant number S 310, was returned to the Federal German Navy in 1964. A new coastal submarine for the Royal Norwegian Navy named *Kobben* with the pennant number S 318, was launched and completed in 1964 (see above).

I Ex-British "U" Class

UTHAUG (ex-H.M.S. Votary)

Pennant No.: S 304
Builders: Vickers-Armstrongs, Tyne
Laid down: 21 Apr. 1943
Launched: 21 Aug. 1944
Completed: 13 Dec. 1944
Displacement: 545 tons standard, 660 tons (surface); 740 tons (submerged)
Dimensions: 204½×16×12½ feet
Tubes: 4—21 inch
Machinery: 2 Davey Paxman diesels, 2 electric motors. H.P.: 1,050=12 kts.
Oil fuel: 55 tons
Radius: 4,000 miles at 10 kts.
Complement: 43

General
Purchased from Great Britain. Converted and modernised in 1955-56 to appearance as shown in photograph. Made farewell cruise to Lerwick, Dundee and Portsmouth, England, in June 1965, as the last of the wartime "U" class submarines in commission. To be replaced in 1965 (a submarine of the same name is being completed, see above).

Reconstruction
During the reconstruction the gun was removed and the conning tower was rebuilt and enlarged, the boat being streamlined throughout, equipped with snort, and fitted with a sonar dome forward.



KYA

1965, Royal Norwegian Navy, Official



KYA

1964, courtesy Dr. Erich Gröner



UTHAUG

1957, Wright & Logan

Photographs
Other photographs of this class after modernisation appear in the 1956-57 to 1963-64 editions (*Utsira*).
Disposals
Of this class, *Utsira* (ex-H.M.S. *Variance*) was stricken from the Navy List in Dec. 1962, *Uzstein* (ex-H.M.S. *Venturer*) in Jan. 1964, *Ula* (ex-H.M.S. *Varne*) in July 1964, and *Utvaer* (ex-H.M.S. *Viking*) in Dec. 1964.

Nomenclature
The "U" class were re-named after features of the Norwegian seaboard, *Ula* being the name of the birth-place of Ulabrand the navigator.
Disposals of ex-German VII C Type
Of the ex-German VII C Type, *Kinn* (ex-U 1202) was removed from the Navy List on 1 June 1961, *Kaura* (ex-U 995) in Jan. 1963, and *Kya* (ex-U 926) in Mar. 1964.

TRAINING SHIP

I Ex-U.S. AVP Type

HAAKON VII (ex-U.S.S. Gardiners Bay, AVP 39)

Displacement: 1,766 tons standard (2,800 tons full load)
Dimensions: 300 (w.l.), 310½ (o.a.)×41½×13½ (max.) feet
Guns: 1—5 inch, 38 cal. d.p., 10—40 mm. AA., 2—20 mm. AA.
Machinery: 2 sets F.M. diesels, 2 shafts.
B.H.P.: 6,080=18.2 kts.
Complement: 215 ship's company, plus 86 officer cadets and petty officer apprentices (accommodation for 367)

General
Formerly a United States seaplane tender (small) of the AVP type. Built by Lake Washington Shipyard Houghton, Wash. Laid down on 14 Mar. 1944, launched on 2 Dec. 1944 and completed on 11 Feb. 1945. Transferred from the United States Navy to the Royal Norwegian Navy on 17 May 1958 and converted and re-armed for use as a training ship for midshipmen and naval cadets.



HAAKON VII

1959, Wright & Logan

COASTAL MINELAYERS



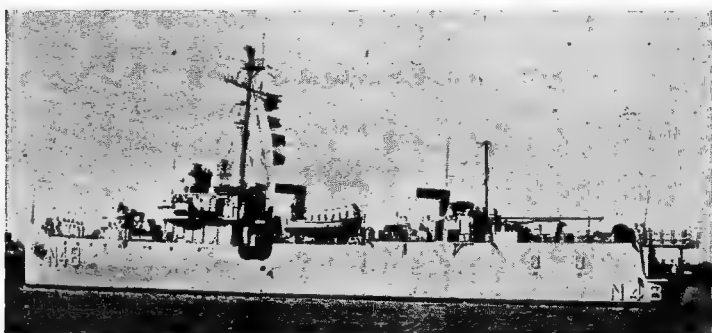
BRAGE

1964, Wright & Logan



TYR

1963, Wright & Logan



GOR

1960, Royal Norwegian Navy, Official

4 "Gor" Class (ex-U.S. MSF Type)

BRAGE (ex-U.S.S. Triumph, MMC 3, ex-MSF 323, ex-AM 323)

GOR (ex-U.S.S. Strive, MMC 1, ex-MSF 117, ex-AM 117)

TYR (ex-U.S.S. Sustain, MMC 2, ex-MSF 119, ex-AM 119)

ULLER (ex-U.S.S. Seer, MMC 5, ex-MSF 112, ex-AM 112)

Displacement: 890 tons standard (1,250 tons full load)
 Dimensions: 215 (w.l.), 221½ (o.a.)×32½×16 (max.) feet
 Guns: 1—3 inch, 50 cal. d.p.; 4—20 mm. AA.
 A/S weapons: 2 Hedgehogs, 3 D.C.T.
 Machinery: G.M. diesels with electric drive, 2 shafts.
 B.H.P.: 2,070=16 kts.
 Complement: 83 (revised official figure)

General

Former United States Coastal Minelayers (MMC) originally built as Ocean Minesweepers (AM) of the large steel-hulled type ("Auk" class) reclassified as Fleet Minesweepers (MSF) in Feb. 1955. Gor, Tyr and Uller were built by the American Shipbuilding Co., Cleveland, Ohio, and Brage by Associated Shipbuilders. Gor and Tyr were converted into coastal minelayers at Charleston Naval Shipyard for transfer to the Royal Norwegian Navy under the MDA Programme late in 1959, and Brage was converted at the same yard in 1960, but Uller was converted at a Norwegian shipyard.

Name	Pennant No.	Laid down	Launched	Completed
Brage	N 49	27 Oct. 1942	25 Feb. 1943	3 Feb. 1944
Gor	N 48	17 Nov. 1941	16 May 1942	27 Oct. 1942
Tyr	N 47	17 Nov. 1941	23 June 1942	9 Nov. 1942
Uller	N 50	28 Nov. 1941	23 May 1942	21 Oct. 1942

Disposals

The two coastal minelayers of the "Otra" class, Otra and Rauma, were stricken from the Navy List in Apr. 1963.

The two coastal minelayers of the converted U.S. LSM type, Vafe (ex-U.S.S. LSM 492) and Vidor (ex-U.S.S. LSM 493), were returned to the U.S. on 1 Oct. 1960, and transferred to Turkey under the MA Programme in Nov. 1960.

The two auxiliary minelayers of the converted British tank landing craft type, Reinøysund and Vargsund were removed from the Navy List in 1960.



STORM

1965, Royal Norwegian Navy, Official

OCEAN MINESWEEPERS (Wooden)



NAMSEN

Added 1961

2 "Lagen" Class (ex-U.S. MSO Type)

Name:	LAGEN (ex-MSO 498)	NAMSEN (ex-MSO 499)
Pennant Nos.:	M 950	M 951
Builders:	Bellingham Shipyard, Inc.,	Bellingham Shipyard, Inc.,
Laid down:	1954	1954
Launched:	1955	1955
Completed:	27 Sep. 1955	1 Nov. 1955
Displacement:	665 tons light (780 tons full load)	
Dimensions:	165 (w.l.), 171 (o.a.)×35×12½ (max.) feet	
Guns:	1—40 mm. AA.	
Machinery:	4 diesels, 2 shafts. B.H.P.: 1,600=13 kts.	
Oil fuel:	46 tons	
Radius:	2,400 miles at 12 kts.	
Complement:	76 (official revised figure)	

General

These ships have wooden hulls and non-magnetic equipment. Of the Ocean Minesweeper, MSO (ex-Fleet Minesweeper, AM) type acquired from the U.S. under the MDA Programme. Taken over by the Royal Norwegian Navy on 27 Sep. and 1 Nov. 1955, respectively. Sailed for Norway in May 1956.

Photographs

A photograph of Namsen, a larger starboard bow view, appears in the 1957-58 to 1960-61 editions.

Disposals

The two former British "Bangor" class fleet minesweepers of the diesel type were removed from the Navy List, Tana on 1 May 1961 and Glomma on 1 Dec. 1961.

PATROL VESSELS



SLEIPNER

1965, Royal Norwegian Navy, Official

2 New Construction. "Sleipner" Class

AEGER P 951

SLEIPNER P 950

Displacement: 600 tons standard (700 tons approx. full load)
 Dimensions: 227½ (o.a.)×26½×8 feet
 Guns: 1—3 inch; 1—40 mm.
 A/S weapons: "Terne" ASW rocket
 Machinery: Diesels, B.H.P.: 9,000=over 20 kts.
 Complement: 62

General

Under the five year programme only two instead of the originally planned five new patrol vessels are being built. They are basically similar in design to the United States submarine chasers or escort vessels of the PCE type. Sleipner was launched on 9 Nov. 1963 at the Nylands Verksted shipyard, Oslo, for commissioning in Spring 1965. Aeger was to have been named Balder.

GUNBOATS

20 New Construction "Storm" Class

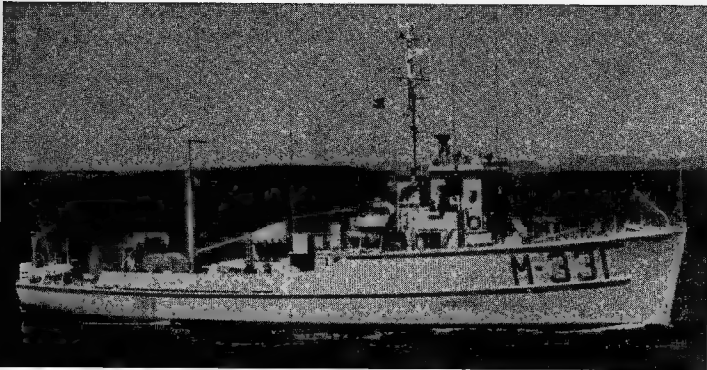
ARG P 968	DJERV P 966	ODD P 975	STEIL P 969
BLINK P 961	GLIMT P 962	PIL P 976	STORM P 960
BRANN P 970	GNIST P 979	ROKK P 978	TRAUST P 973
BRASK P 977	HVASS P 972	SKJOLD P 963	TROSS P 971
BROTT P 974	KJEKK P 965	SKUDD P 967	TRYGG P 964

Displacement: 100 tons standard (125 tons full load)
 Dimensions: 120 (o.a.) feet
 Guns: 1—3 inch; 1—40 mm.
 A/S weapons: Rocket throwers
 Machinery: Diesels, B.H.P.: 7,200=over 30 kts.
 Complement: 26

General

The first of the 20 (instead of the 23 originally planned) gunboats of a new design to be built under the recently initiated five-year new construction programme was Storm, launched on 8 Feb. 1963. Formerly known as Motor Gunboats, but officially reclassified as Gunboats in 1965.

COASTAL MINESWEEPERS



TISTA Added 1964, Royal Norwegian Navy, Official

7 U.S. MSC (ex-AMS) Type

KVINA M 332	SAUDA (ex-U.S.S. AMS 102) M 311	TISTA M 331
OGNA M 315	SIRA (ex-U.S.S. MSC 132) M 312	UTLA M 334
		VOSSO M 316
Displacement:	333 tons standard (384 tons full load)	
Dimensions:	144×28×8½ (max.) feet	
Guns:	2—20 mm. AA.	
Machinery:	G.M. diesels. B.H.P.: 880=13.5 kts.	
Oil fuel:	25 tons	
Complement:	38	

General
Sauda was launched in July 1953 by Hodgeson Bros., Gowdy & Stevens, East Boothbay, Maine and completed on 25 Aug. 1953. Sira was completed 28 Nov. 1955. Hull is of wooden construction. Five wooden coastal minesweepers of the non-magnetic type were built in Norway with engines from the U.S.A. Launched on 21 July 1954 (Kvina), 18 June 1954 (Ogna), 1 June 1954 (Tista), 16 June 1954 (Vassa) and 2 Mar. 1955 (Utleia). Completed on 5 Mar. 1955 (Ogna), 16 Mar. 1955 (Vassa), 27 Apr. 1955 (Tista), 12 July 1955 (Kvina) and 15 Nov. 1955 (Utleia). Kvina, Ogna and Utleia were built by Westermoenes Batbyggeri, Mandal, Tista by Forende Batbyggerier, Risør and Vosso by Skaaluren Skibsbyggeri, Rosendal.

Disposals of Ex-U.S. YMS Type
Alta (ex-NYMS 379), Vinstra (ex-NYMS 247) and Vorma (ex-NYMS 480) were stricken from the Navy List in 1959, Begna (ex-NYMS 381) and Driva (ex-NYMS 377) in 1961, Rana (ex-NYMS 406) in Mar. 1962, and Gaula (ex-NYMS 305) on 26 June 1963.

Disposals of Ex-British MMS II Type
Vefсна (ex-MMS 1086) was stricken from the Navy List in 1962, and Orkla (ex-MMS 1085) in 1964.

WEATHER SHIPS



POLARFRONT II K. Knudsen & Co., A/S Bergen, courtesy R.No.N.

2 Ex-British "Flower" Class

Name:	POLARFRONT I (ex-Saxifrage)	POLARFRONT II (ex-Bryony)
Builders:	Charles Hill & Sons Ltd., Bristol	Harland & Wolff Ltd., Belfast
Laid down:	1 Feb. 1941	18 Nov. 1940
Launched:	24 Oct. 1941	15 Mar. 1941
Completed:	6 Feb. 1942	16 June 1942
Displacement:	1,060 tons standard (1,300 tons full load)	
Dimensions:	205 (o.a.)×33×14½ (max.) feet	
Machinery:	Triple expansion. I.H.P.: 2,750=16.5 kts.	
Boilers:	2 S.E.	
Oil fuel:	350 tons	
Radius:	7,000 miles at 10 kts.	
Complement:	46	

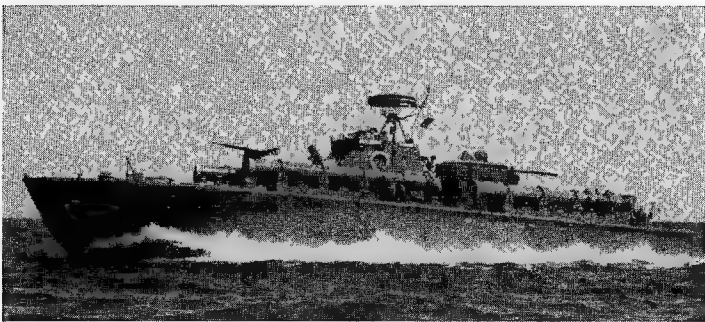
General
Former British "Flower" class corvettes (later re-rated as frigates) transferred to Norway and employed as weather ships.

ICEBREAKER

I Projected

General
A new naval icebreaker is planned under the new construction programme, but she is not being proceeded with for the time being.

TORPEDO BOATS



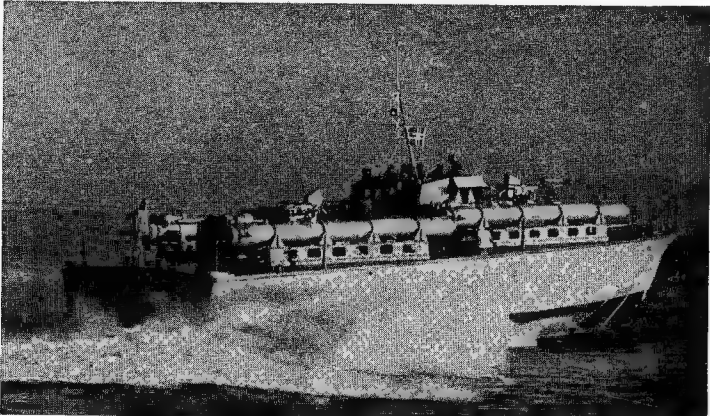
GRIBB 1963, Wright & Logan

.20 "Tjeld" Class

DELFIN P 386	HAI P 381	LAKS P 384	SKARV P 344
ERLE P 390	HAUK P 349	LOM P 347	SKREI P 380
FALK P 350	HVAL P 383	LYR P 387	STEGG P 348
GEIR P 389	JO P 346	RAVN P 357	TEIST P 345
GRIBB P 388	KNURR P 385	SEL P 382	TJELD P 343
Displacement:	64 tons light, 70 tons standard (82 tons full load)		
Dimensions:	75½ (pp.), 80½ (o.a.)×24½×6½ (max.) feet		
Guns:	1—40 mm. AA., 1—20 mm. AA.		
Tubes:	4—21 inch		
Machinery:	2 Napier Deltic Turboblown diesel engines, 2 shafts.		
	B.H.P.: 6,200=45 kts.		
Radius:	450 miles at 40 kts., 600 miles at 25 kts.		
Complement:	18 to 22		

General
Built by Båtservice Verft A/S. The first boat, Tjeld (photograph in the 1961-62 and 1962-63 editions) was commissioned in June 1960, and the last boat of the first group of twelve in 1962. The first of the second group of eight built under the new five year programme, Sel, was launched on 7 Mar. 1963. Formerly known as Motor Torpedo Boats but officially reclassified as Torpedo Boats in 1965.

Transfers
Two of this type were acquired by the U.S.A. in 1963 and renumbered PTF-3 and PTF-4, four in Apr. 1964 (PTF 5 to 8) and eight in Sep. 1964 (PTF 9 to 16).



NASTY 1958, courtesy Båtservice Verft A/S, Builders

NASTY	Displacement:	64 tons light, 69 tons standard (75 tons full load)
	Dimensions:	75 (pp.), 80½ (o.a.)×24½×6½ feet
	Guns:	2—40 mm. AA. Bofors
	Tubes:	4—21 inch
	Machinery:	2 Napier Deltic diesels. B.H.P.: 5,000=43 kts.
	Complement:	22

General
An experimental and private venture by the Norwegian Boat Services, Ltd., A/S, built in 1958 by Båtservice Verft A/S. Subsequently taken over as an experimental vessel by the Royal Norwegian Navy. Constructed of mahogany, with keel and frames of laminated ash and oak. Engines, spares and stores were supplied from Great Britain. Officially put on the reserve list in 1965.



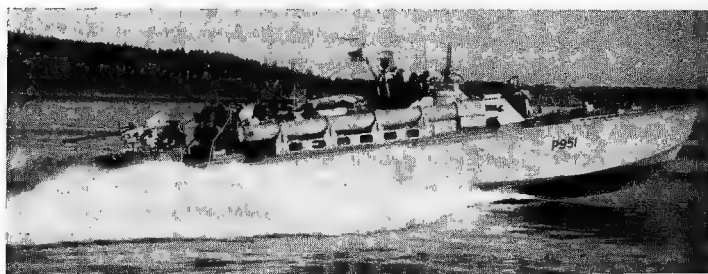
RAPP 1955, R.No.N. Official

6 "Rapp" Class

KJAPP P 354	RAPP P 351	SNAR P 355
KVIKK P 353	RASK P 352	SNØGG P 356
Displacement:	72 tons standard	
Dimensions:	87×23×5 feet	
Guns:	1—40 mm., 1—20 mm. AA.	
Tubes:	4—21 inch	
Machinery:	4 Packard petrol. 2 shafts. B.H.P.: 4,800=32 kts.	
Complement:	18	

General
Built by Båtservice Verft A/S. Of wooden construction, Rapp, the prototype, was laid down in Aug. 1951, launched on 7 May 1952 and completed on 18 Nov. 1952. Five of the same type were built in 1953-56. Pennant Nos. above.

Torpedo Boats—continued



SILD

Added 1962, Royal Norwegian Navy, Official

4 Elco Class (Ex-U.S. PT Type)

P 955 (ex-Springer)
P 956 (ex-Hal)

P 957 (ex-Laks, ex-Hauk)
P 958 (ex-Hval)

Displacement: 45 tons standard (55 tons full load)
Dimensions: 80×24×5½ feet
Guns: 1—40 mm., 1—20 mm., 4—12.7 mm.
Tubes: 2—21 inch
Machinery: 3 Packard petrol. 3 shafts. B.H.P.: 4,500=40 kts.
Complement: 15

General

Built in 1945. Received from the U.S.A. in 1951 under the MDAP Programme. All Elco boats, Ex-PT 603, 604, 606, 612. *Hvass*, *Snagg*, *Hauk* and *Snar* were renamed *Delfin*, *Knurr*, *Laks* and *Lyr*, respectively, on 15 July 1955. Pennant Nos. above.

The four remaining "Elco" class motor torpedo boats were put on the reserve list in 1964 and their names transferred to the "Tjold" class, see previous column, being now known only by their numbers.

Disposals

Of this class *Skrel*, P 952, was scrapped in 1960, *Delfin* (ex-*Hvass*), P 959, *Knurr* (ex-*Snog*), P 954, and *Sel*, P 950 were officially removed from the list on 1 Dec. 1961, *Lyr* (ex-*Snar*), P 952 on 1 Mar. 1962, and *Sild*, P 951, in Dec. 1962.

Disposals of Fairmile "D" Type

The seven remaining motor torpedo boats of the ex-British Fairmile "D" Type, *Falk* (ex-MTB 701), *Lom* (ex-MTB 719), *Ravn* (ex-MTB 720), *Skarv* (ex-MTB 721), *Stegg* (ex-MTB 722), *Teist* (ex-MTB 723) and *Tjeld* (ex-MTB 716), were officially stricken from the Navy List in 1959. Their sister boat, *Jo* (ex-MTB 713), was scrapped in 1958.

Disposals of SC Type Motor Launches

The three motor launches of the SC type, former United States submarine chasers, *Hessa* (ex-SC 683), *Hitra* (ex-SC 718) and *Vigra* (ex-SC 106), were officially stricken from the Norwegian Navy List in 1959.

DEPOT SHIPS

2 Ex-Canadian Frigate Type

HORTEN (ex-Troll, ex-Prestonian)

VALKYRIEN (ex-Garm, ex-Toronto)

General

Former Canadian modernised "River" class frigates loaned to Norway in Mar. 1956 and renamed, transferred outright early in 1959, and converted for use as depot ships and again renamed in 1965 and 1964, respectively, *Horten* for submarine support and *Valkyrien* parent ship for torpedo boats and gunboats. For full particulars see under Modernised Canadian "River" class on page 194.

Disposals of former Depot Ships

The former depot ship for motor torpedo boats, *Valkyrien*, ex-commercial regular coastal passenger, mail and freight carrier, was officially removed from the Navy List on 17 Dec. 1963.

The former depot ship and support tender for submarines, *Sarpen*, ex-German *Königsau*, was officially removed from the Navy List on 12 Dec. 1964.

Disposals of Auxiliaries

The sonar training ship *Pingvin* (ex-Draug, ex-German *Pommern*) was decommissioned on 21 Sep. 1963 and has been removed from the Navy List.

The former United States utility landing craft LCU 1478 has been removed from the Navy List, it was officially stated in 1964.

The battle damage repair ship of the converted American tank landing ship type, *Ellida* (ex-U.S.S. ARB 13, ex-U.S.S. LST 50), was returned to the U.S. Navy on 1 July 1960, and transferred to the Royal Hellenic Navy on 16 Sep. 1960 and renamed *Sakilis*.

The fishery protection vessels *Nordkapp* and *Senja* were stricken from the Navy List in 1956 and sold for use as fishing vessels.

CONTROLLED MINELAYERS

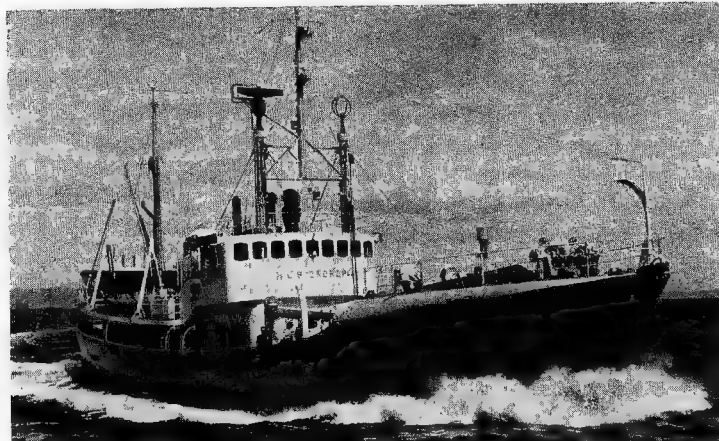
"MUL 12" Type

Displacement: 282 tons standard
Dimensions: 94½ (pp.), 102½ (o.a.)×26½×11 feet
Machinery: 2 G. M. diesels. 2 Vogt-Schneider propellers.
B.H.P.: 330=9 kts.

General

Launched on 29 Apr. 1960. There is also an old minelayer for controlled mines. Both of these coastal artillery ships are part of the Navy.

OCEANOGRAPHIC RESEARCH SHIP



H. U. SVERDRUP

1964. Superintendent I. Engelson, Norwegian Defence Research Establishment

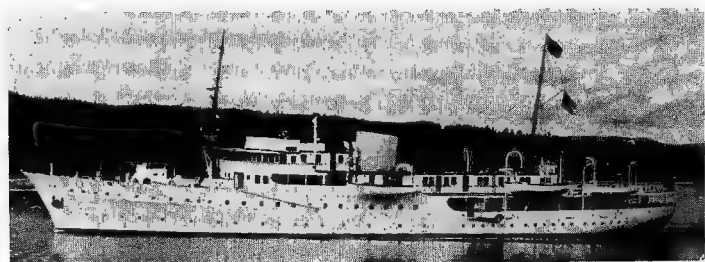
H. U. SVERDRUP

Displacement: 400 tons
Measurement: 295 tons gross
Dimensions: 127½ (o.a.), 111½ (pp.)×25×13 feet
Machinery: Wichmann diesel. B.H.P.: 600=11.5 kts.
Oil fuel: 65 tons
Radius: 5,000 miles at 10 kts. cruising speed
Complement: 10 crew, 9 scientists

General

Oceanographic Research Ship built by Örens Mekaniske Verktøysted, Trondheim. Laid down in Sep. 1959, launched in Feb. 1960 and completed on 15 June 1960. Financed by the U.S. Mutual Weapon Development Programme and transferred to and operated by the Norwegian Defence Research Establishment. Steel hull, welded construction, trawler bow, cruiser stern, controllable pitch propeller.

ROYAL YACHT



NORGE

1965, Royal Norwegian Navy, Official

1 Ex-British Escort Type

NORGE (ex-Philante)

Measurement: 1,686 tons (Thames yacht measurement)
Dimensions: 250½ (pp.), 263 (o.a.)×28×15½ feet
Machinery: 8-cyl. diesels. 2 shafts. B.H.P.: 3,000=17 kts.

General

Built by Camper & Nicholson's Ltd., Gosport, England, Launched on 17 Feb. 1937. Constructed to the order of the late Mr. T. O. M. Sopwith to act as escort and store vessel for the yachts *Endeavour I* and *Endeavour II*. Served in the British Navy as an anti-submarine escort vessel during the Second World War, after which she was purchased by the Norwegian people for King Haakon at a cost of nearly £250,000 and reconditioned as a Royal Yacht at Southampton. Can accommodate about 50 people in addition to the crew. Pennant No. A 533.

PANAMA

Base

Under the 1955 Treaty the United States occupied the Rio Hato base.

Mercantile Marine

Lloyd's Register of Shipping: 691 ships of 4,269,462 tons gross

COAST GUARD PATROL VESSELS

2 U.S. Small C.G. Utility Type

Displacement: 35 tons
Dimensions: 69×14×5 feet
Guns: 1 M.G.
Machinery: H.P.: 400=13 kts.
Complement: 10

General

Two small craft purchased from the United States Government in 1947. Two coast guard utility boats were transferred to Panama by the U.S.A. at the U.S. Naval Station, Rodman, Canal Zone, in June 1962.

Auxiliaries

There is a Navy fire-fighting tug. One or two U.S. service boats are also reported.

PAKISTAN

Administration

Commander-in-Chief, Pakistan Navy,
and Chief of the Naval Staff:
Vice-Admiral, Afzal Rahman Khan, H.P.K.,
H.Q.A.

Commodore Commanding P. N. Flotilla:
Commodore S. B. Salimi, P.N.

Naval Adviser to the Pakistan High Commis-
sion, London:
Commodore M. M. Hussain, P.N.

Personnel

1963: 7,700 (700 officers; 7,000 ratings)
1964: 8,250 (750 officers, 7,500 ratings)
1965: 8,350 (790 officers, 7,560 ratings)

Mercantile Marine

Lloyd's Register of Shipping:
120 vessels of 333,695 tons gross

Deputy Chief of Naval Staff (Operations):
Commodore Muzaffar Hasan, P.N.

Naval Attaché in Washington:
Captain Anwer Saeed.

Silhouettes

Scale: 150 ft.=1 inch.



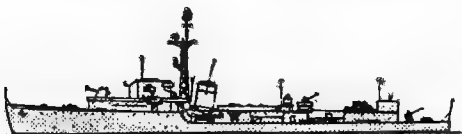
BABUR



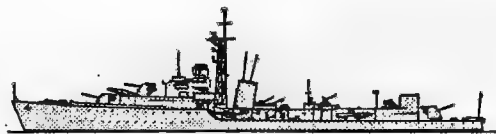
SHAH JAHAN



BADR, KHAIBAR



TIPPU SULTAN, TUGHRIL

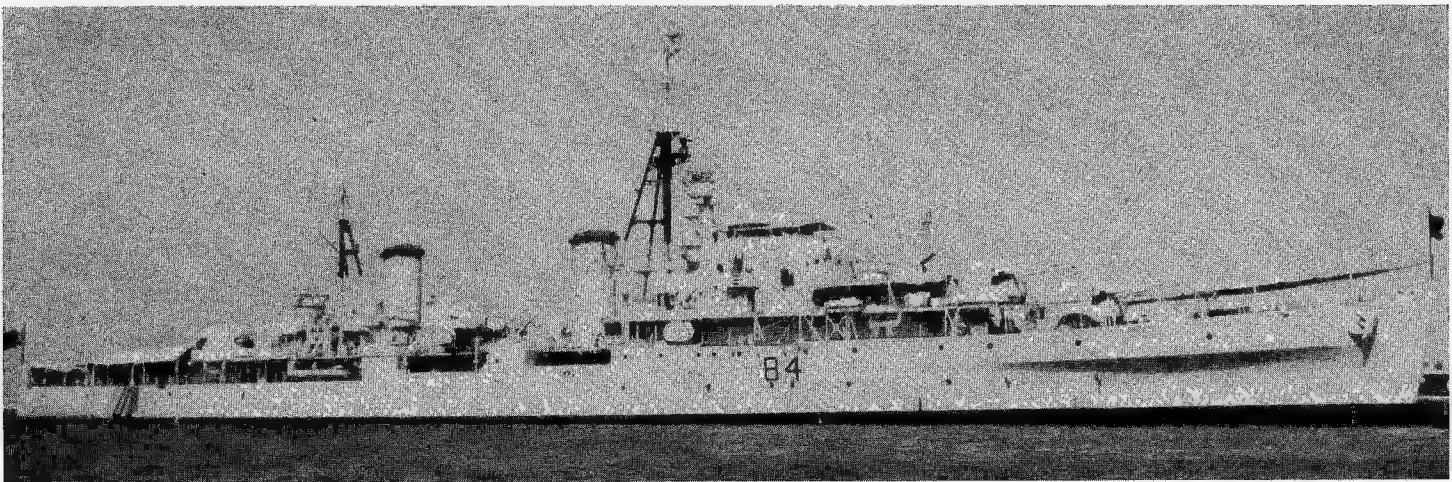


ALAMGIR, JAHANGIR



ZULFIQUAR

LIGHT CRUISER (Cadet Training Ship)



BABUR

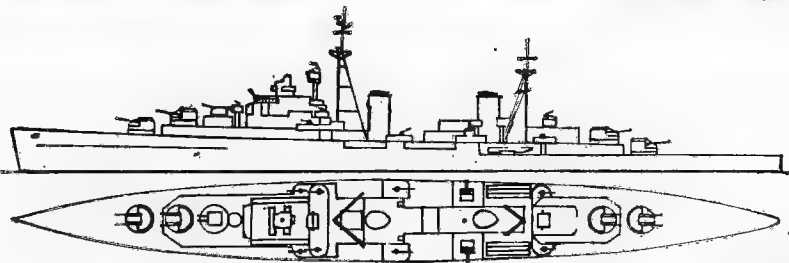
1963, Pakistan Navy, Official

I Improved "Dido" Class

BABUR (ex-H.M.S. Diadem)

Pennant No.: 84
Builders and Engineers: R. & W. Hawthorn, Leslie & Co. Ltd., Hebburn-on-Tyne
Laid down: 15 Nov. 1939
Launched: 26 Aug. 1942
Completed: 6 Jan. 1944

Displacement: 5,900 tons standard (7,560 tons full load)
Dimensions: Length: 512 feet (o.a.) Beam: 52 feet. Draught: 15 feet (mean), 18½ (max.) feet
Guns: 8—5.25 inch AA., 14—40 mm. AA., 4—3 pdr.
Tubes: 6—21 inch (tripled)
Armour: 2 inch side, 2 inch turrets
Machinery: Parsons single reduction geared turbines. 4 shafts. S.H.P.: 62,000 =32 kts.
Boilers: 4 Admiralty 3-drum type
Complement: 588 (peace)



General
Former British anti-aircraft light cruiser built under the Second World War estimates. Sold to Pakistan on 29 Feb. 1956 (announced by Admiralty). Refitted at H.M. Dockyard, Portsmouth in 1957, with new radar and revised secondary armament. Officially turned over from the Royal Navy to the Pakistan Navy and re-named *Babur* at Portsmouth on 5 July, 1957.

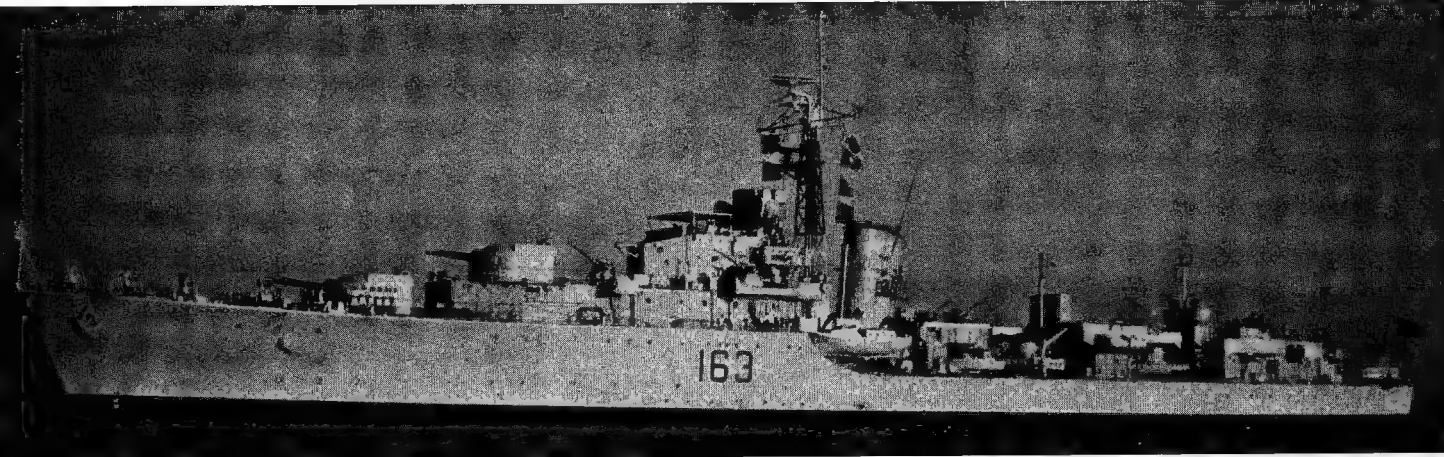
Conversion
Converted into a training ship for cadets in 1961.

Class
Originally a sister ship of *Royalist* in the Royal New Zealand Navy.

Nomenclature
Renamed after Babur, the founder of the great Mogul Empire. (*Diadem* means the emblem of sovereignty.) The prefix 'C' was dropped from the pennant number in 1963.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.

DESTROYERS



KHAIBAR

1964, Pakistan Navy, Official

2 "Battle" Class

BADR (ex-H.M.S. *Gabbard*)
KHAIBAR (ex-H.M.S. *Cadiz*)

Name:	Badr	Khalbar
Pennant No.:	161 (ex-D 47)	163 (ex-D 79)
Builders:	Swan, Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne	Fairfield Shipbuilding & Engineering Co. Ltd., Govan, Glasgow
Laid down:	2 Feb. 1944	10 May 1943
Launched:	16 Mar. 1945	16 Sep. 1944
Completed:	10 Dec. 1946	12 Apr. 1946
Displacement:	2,325 tons standard (3,361 tons full load)	
Dimensions:	355 (pp.), 379 (o.a.)×40½×12½ (mean), 17 (max.) feet	
Guns:	4—4.5 inch, 10—40 mm. AA.	
Tubes:	8—21 inch (quadrupled)	
A/S weapons:	Squid three-barrelled depth charge mortar	
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 50,000=35.75 kts. (designed) 31 kts. sea speed	
Boilers:	2 Admiralty 3-drum type	
Oil fuel	680 tons	
Radius:	3,000 miles at 20 kts.	
Complement:	270	

General
The Admiralty announced on 29 Feb. 1956 the sale of these two destroyers to Pakistan. Refitted and modernised in Great Britain with funds made available by the United States under the Mutual Defense Assistance Program.



BADR (Pennant No. now 161)

1957, Pakistan Navy, Official

Transfers

Badr was refitted at Palmers Hebburn, Yarrow, handed over to the Pakistan Navy on 24 Jan. 1957 and sailed from Portsmouth for Karachi on 17 Feb. 1957.
Khalbar was refitted at Alex. Stephen & Sons Ltd., Govan, Glasgow, and handed over to the Pakistan Navy on 1 Feb. 1957.

Nomenclature

Kalbar was named in commemoration of a famous battle in the history of Islam which Prophet Mohammed won in Arabia over 1,350 years ago.
Pennant Nos.
Pennant Nos. were changed from D 47 and D 79 to 161 and 163, respectively, in 1963.

2 "Cr" Class

ALAMGIR (ex-H.M.S. *Creole*)
IAHANGIR (ex-H.M.S. *Crispin*, ex-*Craccher*)

Name:	Alamgir	Jahangir
Pennant No.:	160 (ex-D 82)	162 (ex-D 168)
Builders:	J. Samuel White & Co. Ltd., Cowes	J. Samuel White & Co. Ltd., Cowes
Laid down:	3 Aug. 1944	1 Feb. 1944
Launched:	22 Nov. 1945	23 June 1945
Completed:	14 Oct. 1946	10 July 1946
Displacement:	1,730 tons standard (2,560 tons full load)	
Dimensions:	362½×35½×10 (mean), 16 (max.) feet	
Guns:	3—4.5 inch, 6—40 mm. AA.	
Tubes:	4—21 inch (quadrupled)	
A/S weapons:	2 Squid triple-barrelled depth charge mortars	
Machinery:	Parsons geared turbines: 2 shafts. S.H.P.: 40,000=36.75 kts. (designed), 31.25 kts. (sea speed)	
Boilers:	2 Admiralty 3-drum type	
Oil fuel	580 tons	
Radius:	2,800 tons at 20 kts.	
Complement:	200	

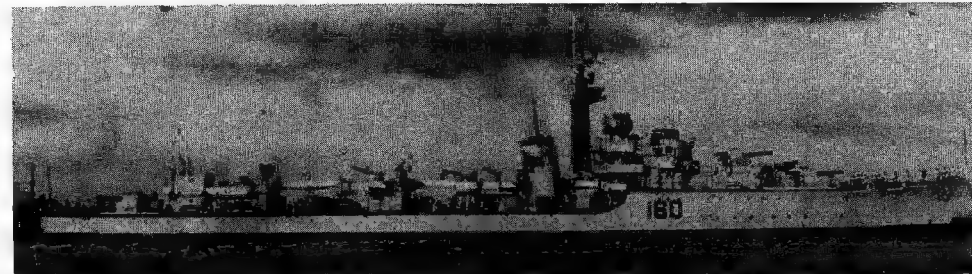
General
The Admiralty announced on 29 Feb. 1956 the sale of these two destroyers to Pakistan. They were refitted and modernised in Great Britain by John I. Thornycroft & Co. Ltd., Woolston, Southampton, in 1957-58 with funds made available by the United States under the Mutual Defense Assistance Program.

Gunnery

They formerly had a W/T cabin in place of "B" gun and a gun in "X" position but during the refit before joining the Pakistan Navy the 4.5 inch gun was restored to "B" position, the 4.5 inch gun in "X" position was suppressed, and two Squids substituted.

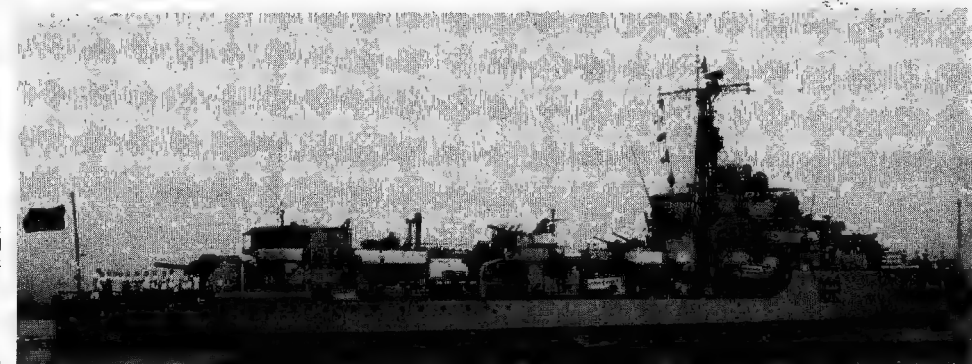
Pennant Nos.

Pennant Nos. were changed from D 82 and D 168 to 160 and 162, respectively, in 1963.



ALAMGIR

1965, Pakistan Navy, Official



IAHANGIR

1965, Pakistan Navy, Official

Transfers

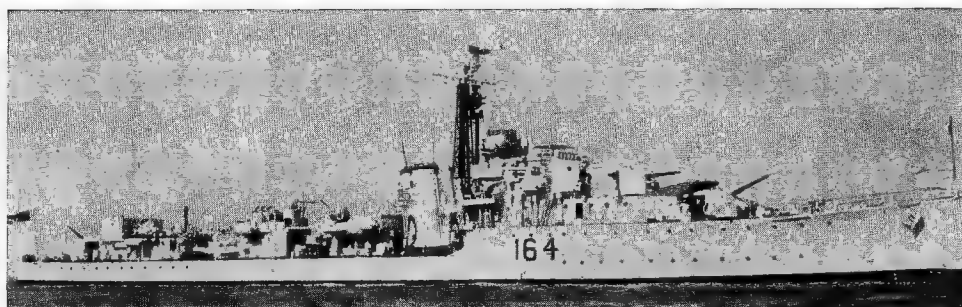
Crispin was turned over to the Pakistan Navy at Southampton on 18 March 1958 and renamed *Jahangir*. *Creole* was turned over at Southampton in 1958 and renamed *Alamgir*.

Destroyers—continued

SHAH JAHAN (ex-H.M.S. Charity)

Pennant No.: 164 (ex-D 29)
Builders: John I. Thornycroft & Co. Ltd., Woolston, Southampton
Laid down: 9 July 1943
Launched: 30 Nov. 1944
Completed: 19 Nov. 1945
Displacement: 1,710 tons standard (2,545 tons full load)
Dimensions: 362½×35½×10 (mean), 16 (max.) feet
Guns: 3—4.5 inch, 6—40 mm. AA.
Tubes: 4—21 inch (quadrupled)
A/S weapons: 2 Squid triple-barrelled depth charge mortars
Machinery: Parsons geared turbines, 2 shafts, S.H.P.: 40,000=36.75 kts. (designed), 31.25 kts. (sea speed)
Boilers: 2 Admiralty 3-drum type
Complement: 200

General
 Purchased from Great Britain by the U.S.A. and, under the Mutual Defence Assistance Programme handed over to the Pakistan Navy on 16 Dec. 1958 at the ship-



SHAH JAHAN

1963, Pakistan Navy, Official

yard of J. Samuel White & Co. Ltd., Cowes, Isle of Wight who refitted her, and renamed *Shah Jahan* ("Emperor of the World") after the Fifth Emperor of the Mughal Dynasty who was the ruler at the height of the prosperity of the Mughal Empire.

Disposal

Sister ship *Taimur* (ex-H.M.S. *Chivalrous*) was returned to the Royal Navy and scrapped in 1960-61. Pennant No.

Pennant number changed from D 29 to 164 in 1963.

SUBMARINE

GHAZI (ex-U.S.S. *Diablo*, SS 479)

Builders: Portsmouth Naval Shipyard
Launched: 30 Nov. 1944
Completed: 31 Mar. 1945
Displacement: 1,570 tons standard; 1,800 tons surface (2,500 tons submerged)
Dimensions: 311½ (o.a.)×27½×17 feet
Tubes: 10—21 inch (6 bow, 4 stern)
Machinery: 4 diesels, B.H.P.: 6,500=20 kts. (surface)
 4 electric motors, S.H.P.: 4,610 =10 kts. (submerged)
Oil fuel: 300 tons
Radius: 14,000 miles at 10 kts.
Complement: 80 (8 officers, 72 men)

GHAZI

Added 1964, A. & J. Pavia

General
 Former U.S. submarine of the "Tench" class, AGSS, Pakistan Navy on 1 June 1964 under the Military Aid Programme (transfer negotiated in 1963).
 ex-SS. Transferred on loan from the U.S. Navy to the



FAST ANTI-SUBMARINE FRIGATES (ex-Destroyers)

2 "O" Class
Limited Conversion, Type 16

TIPPU SULTAN (ex-H.M.S. *Onslow*, ex-*Pakenham*)
 TUGHRIL (ex-H.M.S. *Onslaught*, ex-*Pathfinder*)

Name:	Tippu Sultan	Tughril
Pennant No.:	260 (ex-F 249)	261 (ex-F 204)
Builders:	John Brown & Co. Ltd., Clydebank	Fairfield S.B. & Eng. Co. Ltd., Glasgow
Laid down:	1 July 1940	14 Jan. 1941
Launched:	31 Mar. 1941	9 Oct. 1941
Completed:	8 Oct. 1941	19 June 1942

Displacement: 1,800 tons standard (2,300 tons full load)
Dimensions: 338½ (pp.), 345 (o.a.)×35×9 (mean), 15½ (max.) feet
Guns: 2—4 inch, 5—40 mm. AA.
Tubes: 4—21 inch
A/S weapons: 2 Squid triple-barrelled depth charge mortars
Machinery: Parsons geared turbines, 2 shafts, S.H.P.: 40,000=34 kts.
Boilers: 2 Admiralty 3-drum type
Complement: 170

General
 Originally three "O" class destroyers were acquired from Great Britain, *Tippu Sultan* being handed over on 30 Sep. 1949; *Tariq* on 3 Nov. 1949; and *Tughril* on 6 Mar. 1951.



TIPPU SULTAN

1963, Pakistan Navy, Official

An agreement was signed in London between Great Britain and U.S.A. for refit and conversion in the United Kingdom of *Tippu Sultan* and *Tughril* (announced 29 Apr. 1957) with funds provided under the Mutual Security Act of the U.S.A. Pennant Nos. were changed from D 49 and D 204 to F 249 and F 204 respectively, in 1959, and to 260 and 261 in 1963.

All three ships were scheduled for conversion into fast anti-submarine frigates. *Tippu Sultan* and *Tughril* were converted at Liverpool by Grayson Rolls & Clover Docks Ltd., Birkenhead, and C. & H. Crighton Ltd., respectively. *Tariq* was not converted. She was handed back to Great Britain at Portsmouth on 10 July 1959 for disposal.

SURVEYING VESSEL

I "River" Class (Modified Frigate)

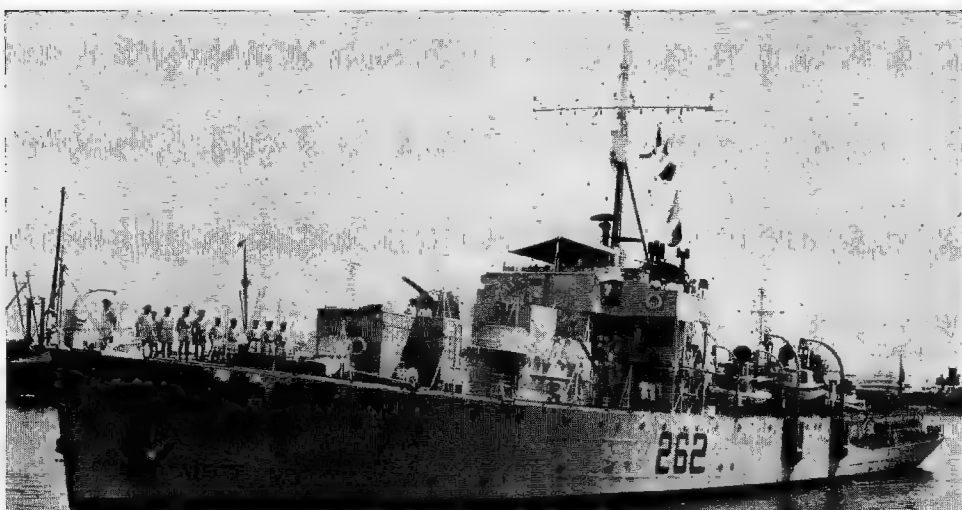
ZULFIQUAR (ex-Dhanush, ex-Deveron)

Pennant No.: 262 (ex-F265)
Builders: Smith's Dock Co. Ltd., South Bank-on-Tees
Laid down: 16 Apr. 1942
Launched: 12 Oct. 1942
Completed: 2 Mar. 1943
Displacement: 1,370 tons standard (2,100 tons full load)
Dimensions: 301½ (o.a.)×36½×12 feet
Guns: 1—4 inch, 2—40 mm. AA.
Machinery: Triple expansion, I.H.P.: 5,500 =20 kts.
Boilers: 2 Admiralty 3-drum type
Complement: 150

General
 Former British "River" class frigate, converted into a survey ship, with additional charthouse aft. She has strengthened davits and carries survey motor boats. The after 4-inch gun was removed.

Pennant Nos.
 The pennant number was changed from F 265 to 262 in 1963.

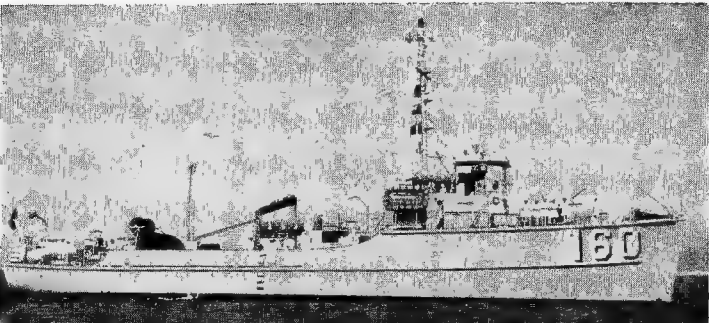
Disposal
 Sister ship *Shamsher* (ex-Nadder) (training ship) of the "River" class was disposed of in 1960.



ZULFIQUAR

1963, Pakistan Navy, Official

COASTAL MINESWEEPERS



MAHMOOD 1963, Pakistan Navy, Official

MAHMOOD (ex-*MSC 267*) MOSHAL (ex-*MSC 294*) MUJAHID (ex-*MSC 261*)
MOMIN (ex-*MSC 293*) MUBARAK (ex-*MSC 262*) MUKHTAR (ex-*MSC 274*)
MUHAFIZ (ex-*AMS 138*) MUNSIF (ex-*MSC 273*)

Displacement: 335 tons light (375 tons full load)
Dimensions: 138 (pp.), 144 (o.a.)×27×8½ feet
Guns: 2—20 mm.
Machinery: G.M. diesels, 2 shafts, B.H.P.: 880 14 kts.
Complement: 39

General
Transferred to Pakistan by the U.S. unde MAP. Mukhttar and Munsif on 25 June 1959, Muhafiz on 25 Feb. 1955, Mujahid in Nov. 1956, Mahmood in May 1957, Mubarak in 1957, Momin in Aug. 1962 and Moshal in Dec. 1963. A photograph of Momin appears in the 1964-65 edition.

PATROL CRAFT



JESSORE 1965, Pakistan Navy, Official

4 "Town" Class

COMILLA JESSORE RAJSHAHI SYLHET

Displacement: 115 tons standard (143 tons full load)
Dimensions: 100 (w.f.), 107 (o.a.)×20×5 feet
Guns: 2—40 mm., 70 cal. Bofors AA.
Machinery: 2 Maybach/Mercedes MD 655/18 diesel engines, B.H.P.: 3,400 (tropical)=24 kts.
Complement: 19

General
These fast patrol craft, named after towns in East Pakistan, were built by Brooke Marine Limited, Lowestoft, England, to the order of the Pakistan Government. The contract was placed on 5th Oct. 1963, Jessore and Comilla were commissioned on 20th May, 1965 and Rajshahi and Sylhet entered the service of the Pakistan Navy by Aug. 1965. The hulls are of special design longitudinally and transversely strengthened. All-welded steel construction with superstructures of all welded sea resistant aluminium alloy.

SEAWARD DEFENCE MOTOR LAUNCHES



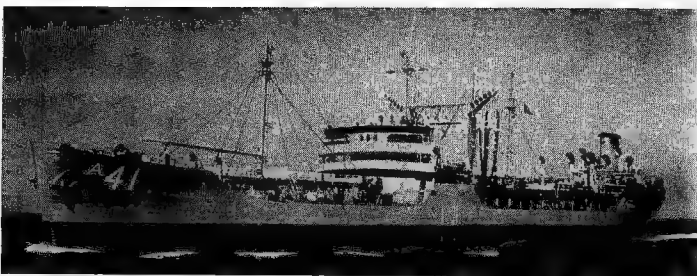
SDML 3520 1965, Pakistan Navy, Official

SDML 3517 (ex-SDML 1261) SDML 3520 (ex-SDML 1266)

Displacement: 46 tons standard (54 tons full load)
Dimensions: 72 (o.a.)×15½×5½ feet
Guns: 1—3 pdr., 1—20 mm. AA.
Machinery: Diesel, 2 shafts, B.H.P.: 320—12 kts.
Complement: 14

General
Former British Harbour Defence Motor Launches of wooden construction, built under the emergency programme during the Second World War, and re-designated Seaward Defence Motor Launches after the war. SDML 3518 and SDML 3519 were scrapped in 1965. A photograph of SDML 3517 appears in the 1963-64 and 1964-65 editions.

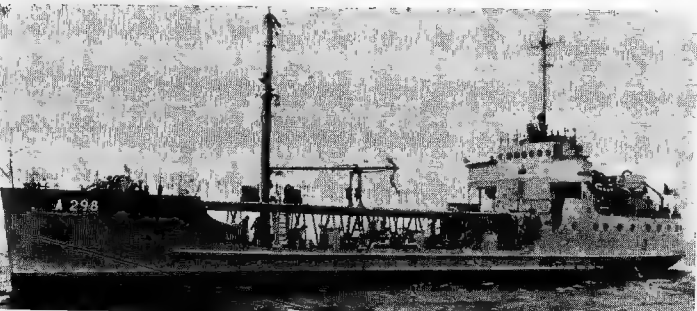
OILERS



DACCA 1964, Pakistan Navy, Official
DACCA (ex-U.S.N.S. *Mission Santa Clara*, AO 132)

Displacement: 5,730 tons light (22,380 tons full load)
Dimensions: 503 (w.f.), 523½ (o.a.)×68×30½ (max.) feet
Machinery: Turbo-electric, S.H.P.: 6,000=15 kts.
Boilers: 2 Babcock & Wilcox
Oil capacity: 20,000 tons (official figure), 134,000 barrel capacity
Complement: 160 (15 officers and 145 men)

General
Former U.S. fleet tanker of the "T2-SE-A1" Type ("Mission" Class). Transferred on loan to Pakistan under the Mutual Defence Assistance Programme. Handed over from the U.S. to the Pakistan Navy on 17 Jan. 1963. Pennant No. A 41.



ATTOCK 1963, Giorgio Arca

Displacement: 600 tons standard (1,255 tons full load)
Dimensions: 177½ (o.a.)×32×15 (max.) feet
Machinery: Direct coupled diesel, Speed 8·5 kts.
Complement: 26

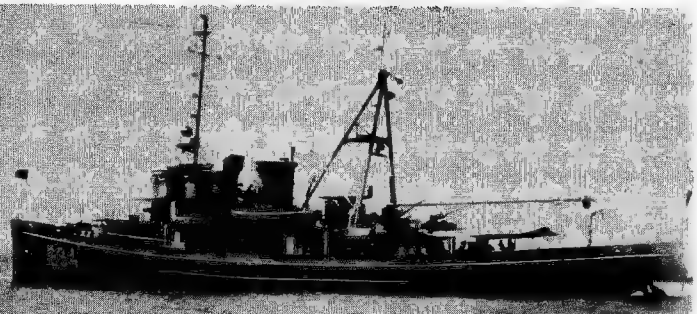
General
A harbour oiler of 6,500 barrels capacity built in Trieste, Italy, in 1960 for the Pakistan Navy, under the Mutual Defence Assistance Programme of U.S.A.

WATER CARRIER

ZUM ZUM YW 15

General.
Built in Italy under U.S. off-shore procurement of the MDA Programme.

TUGS



MADADGAR 1965, Pakistan Navy, Official

MADADGAR (ex-U.S.S. *Yuma*, ATF 94)
Displacement: 1,235 tons standard (1,675 tons full load)
Dimensions: 195 (w.f.), 205 (o.a.)×38½×15½ (max.) feet
Machinery: 4 sets G. M. diesels with electric drive, 1 shaft, B.H.P.: 3,000=16·5 kts.
Complement: 85

General
Ocean-going salvage tug. Built by Commercial Iron Works, Portland, Oregon. Laid down on 13 Feb. 1943. Launched on 17 July 1943. Completed on 31 Aug. 1943. Transferred from the U.S. Navy to the Pakistan Navy on 25 Mar. 1959 under MDAP. Fitted with powerful pumps and other salvage equipment.

RUSTOM
Dimensions: 105×30×11 feet
Machinery: Crossley diesel, B.H.P.: 1,000=9·5 kts. (max.)
Radius: 1,500 miles endurance.
Complement: 21

General
General purpose tug for the Pakistan Navy originally ordered from Werf-Zeeland at Hansweert, Netherlands, in Aug. 1952, but after the liquidation of this yard the order was transferred to Worst & Dutmer at Meppel, Launched on 29 Nov. 1955. A photograph appears in the 1964-65 edition.

BHOLU
General
These are small harbour tugs built under an "off-shore" order by Costaguta-Voltz, GAMA

PERU

Administration

Minister of Marine:
Vice-Admiral Florencio Teixeira V.

Chief of Naval Operations:
Vice-Admiral Alejandro Martinez C.

Chief of Naval Staff:
Vice-Admiral Alfonso Pareja M.

Commander-in-Chief of the Fleet:
Rear Admiral Jorge Barreto A.

Naval Attaché in London:
Rear-Admiral Hernan Vasquez L.

Naval Attaché in Washington:
Rear-Admiral Paul Rios P. de Z.

Personnel

1965: 7,150 (650 officers, 6,500 men)

Mercantile Marine

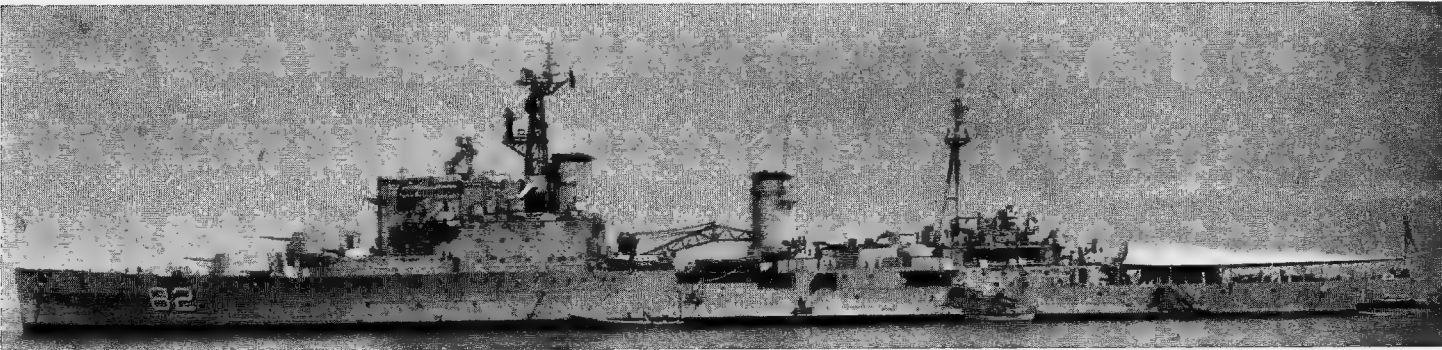
Lloyd's Register of Shipping:
60 vessels of 157,610 tons gross

CRUISERS



ALMIRANTE GRAU

1964, Peruvian Navy, Official



CORONEL BOLOGNESI

1962, Peruvian Navy, Official

2 "Almirante Grau" Class

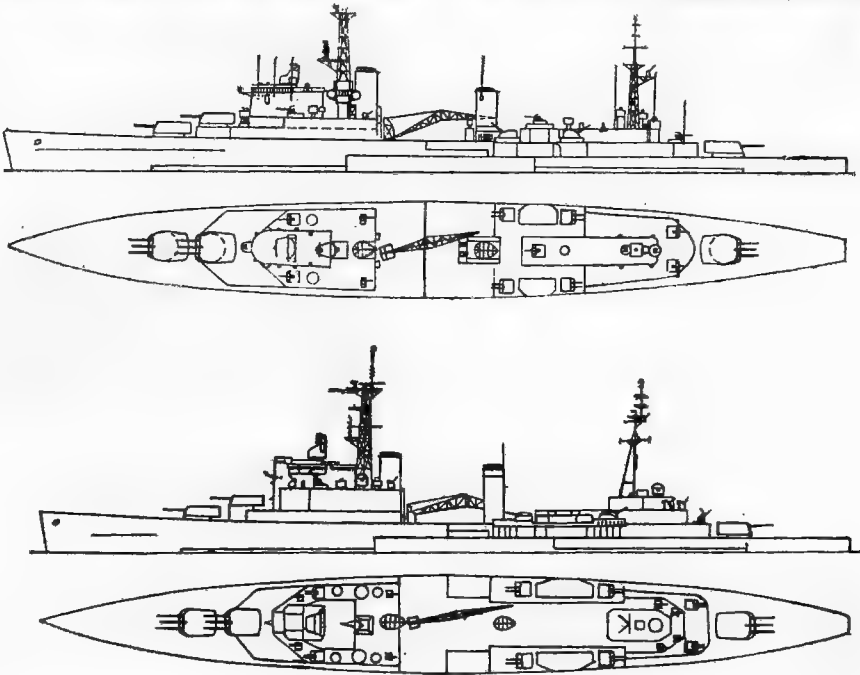
ALMIRANTE GRAU (ex-H.M.S. Newfoundland)	
CORONEL BOLOGNESI (ex-H.M.S. Ceylon)	
Name:	Almirante Grau. Coronel Bolognesi
Pen. No.:	81 82
Builders:	Swan, Hunter & Wigham Richardson, Ltd., Wallsend-on-Tyne Alexander Stephen & Sons, Ltd., Govan, Glasgow
Engineers:	The Wallsend Slipway & Engineering Co., Ltd., Wallsend-on-Tyne Alexander Stephen & Sons, Ltd., Govan, Glasgow
Laid down:	9 Nov. 1939 27 Apr. 1939
Launched:	19 Dec. 1941 30 July 1942
Completed:	13 July 1943 31 Dec. 1942
Displacement:	Coronel Bolognesi: 8,781 tons standard (11,110 tons full load) Almirante Grau: 8,800 tons standard (11,090 tons full load)
Dimensions:	Length: 549 (w.l.), 555; (o.a.) feet. Beam: 62 feet. Draught: 16½ (mean), 20½ (max.) feet
Guns:	9—6 inch, 8—4 inch AA., 12—40 mm. AA. (Coronel Bolognesi 18—40 mm.)
Tubes:	Removed
Armour:	4" side, 4" C.T., 2" turrets 2" deck
Machinery:	Parsons single-reduction geared turbines, 4 shafts. S.H.P.: 72,500 =31.5 kts.
Boilers:	4 Admiralty 3-drum type
Oil fuel:	1,620 tons
Radius:	6,000 miles at 13 kts.
Complement:	Coronel Bolognesi, 766, Almirante Grau, 808

General
Former British cruisers of the "Ceylon" class. The designed displacement was 8,000 tons. These ships were a modification of the original "Colony" class design, one 6-inch turret having been suppressed, and the number of light AA. guns augmented.

Reconstruction
Almirante Grau was reconstructed in 1951-53 at H.M. Dockyard, Devonport, with two lattice masts, new bridge and improved AA. armament: her torpedo tubes being removed.

Coronel Bolognesi was refitted with lattice foremast and covered modified bridge in 1955-56, and her torpedo tubes were removed.

Gunnery
The 4 inch guns of Coronel Bolognesi are radar-controlled.



Torpedo Tubes
These ships originally mounted 6—21 inch torpedo tubes.

Photographs
A port bow view of Coronel Bolognesi appears in the 1960-61 and 1961-62 editions.

Appearance
Almirante Grau has new H.A. director mounted on either side of bridge. Coronel Bolognesi was refitted with a lattice foremast and a tripod mainmast, whereas Almirante Grau was reconstructed with two lattice masts.

Upper Drawing
Port elevation and plan of Almirante Grau. Scale: 128 feet=1 inch.

Lower Drawing
Port elevation and plan of Coronel Bolognesi. Scale: 128 feet=1 inch.

Transfer
Almirante Grau (incorporated in the Peruvian Navy on 19 Dec. 1959) was formally transferred from the British Navy at Portsmouth on 30 Dec. 1959 and Coronel Bolognesi was transferred from the British Navy at Portsmouth on 9 Feb. 1960.

DESTROYERS

2 "Villar" Class

Ex-U.S. "Fletcher" Class

GUISE (ex-U.S.S. Isherwood, DD 520)
VILLAR (ex-U.S.S. Benham, DD 796)

Name:	Guise	Villar
Pennant No.:	72	71
Builders:	Bethlehem Steel Co., Staten Island	Bethlehem Steel Co., Staten Island
Launched:	24 Nov. 1942	29 Aug. 1943
Completed:	10 Apr. 1943	20 Dec. 1943

Displacement:	2,100 tons standard (3,150 tons full load)
Dimensions:	376½ (o.a.)×39½×12½ (mean), 18 (max.) feet
Guns:	4—5 inch, 38 cal. d.p.; 6—3 inch 50 cal. AA. (3 twin)
Tubes:	5—21 inch (quintupled)
A/S weapons:	2 fixed Hedgehogs, 1 D.C. rack, 2 side-launching torpedo racks
Machinery:	2 General Electric geared turbines, 2 shafts. S.H.P.: 60,000=35 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	650 tons
Radius:	6,000 miles at 15 kts.
Complement:	300 (peace), 350 (war)

General
Former United States destroyers of the Later "Fletcher" class (Villar) and "Fletcher" class (Guise).

Transfer
Transferred from the United States Navy to the Peruvian Navy at Boston, Massachusetts, on 15 Dec. 1960, and at San Diego, California, on 8 Oct. 1961, respectively

Acquisition Programme
Two more destroyers of the "Fletcher" type are to be transferred from the U.S.A.



GUISE

1964, Peruvian Navy, Official



VILLAR

1961, Peruvian Navy, Official

DESTROYER ESCORTS

3 "Castilla" Class

Ex-U.S. "Bostwick" Class

AGUIRRE (ex-U.S.S. Waterman, DE 740)
CASTILLA (ex-U.S.S. Bangust, DE 739)
RODRIGUEZ (ex-U.S.S. Weaver, DE 741)

Displacement:	1,240 tons standard (1,900 tons full load)
Dimensions:	300 (pp.), 306 (o.a.)×36½×12 (max.) feet
Guns:	3—3 inch, 50 cal., d.p., 6—40 mm. AA. (three twin), 10—20 mm. AA.
Tubes:	Removed (see Torpedo notes)
A/S weapons:	1 Mark 10 ahead throwing weapon; 8 K guns; 2 depth charge racks aft
Machinery:	4 diesel-electric sets coupled to 2 shafts. B.H.P.: 6,000=20 kts.
Oil fuel:	322 tons
Radius:	10,500 miles at 12 kts.
Complement:	220

General
Former United States destroyer escorts, DE, of the "Bostwick" class. All built by the Western Pipe & Steel Co., San Pedro, California, in 1943. Transferred to Peru on 26 Oct. 1951, under the Mutual Defense Assistance Program. Reconditioned and modernised at Green Cove Springs and Jacksonville, Flor. Actually arrived in Peru on 24 May 1952.

Pennant Numbers
Given "DE" instead of "D" pennant numbers in 1959. Pennant numbers were changed from 2, 1 and 3 to 62, 61 and 63, respectively, in 1960.

Torpedo Tubes
The original three 21 inch torpedo tubes in a triple mounting were removed.

Photograph
A starboard quarter oblique aerial view of Castilla appears in the 1953-54 to 1959-60 editions, and a port broadside surface view of Rodriguez in the 1960-61 to 1963-64 editions.

Name	Pennant No.	Launched	Completed
Aguirre	62	4 July 1943	31 Dec. 1943
Castilla	61	6 June 1943	30 Oct. 1943
Rodriguez	63	20 June 1943	30 Nov. 1943



CASTILLA

1964, Peruvian Navy, Official



AGUIRRE

1960, Peruvian Navy, Official

FRIGATES

2 "Palacios" Class

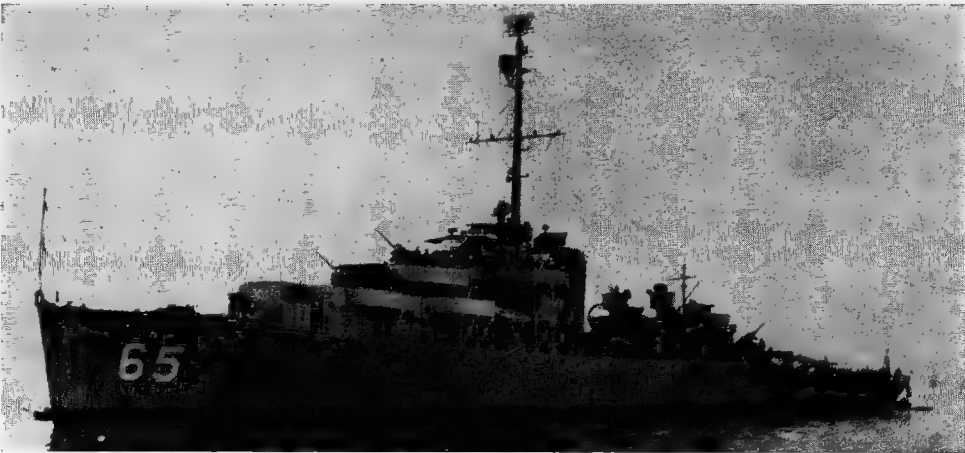
Ex-Canadian "River" Class

FERRÉ (ex-H.M.C.S. Poundmaker)
PALACIOS (ex-H.M.C.S. St. Pierre)

Name:	Ferré	Palacios
Pennant No.:	66	65
Builders:	Canadian Vickers Ltd., Montreal	Quebec Shipbuilding Co., Lauzon, P.Q.
Launched:	21 Apr. 1944	1 Dec. 1943
Completed:	17 Sep. 1944	22 Aug. 1944
Displacement:	1,445 tons standard (2,360 tons full load)	
Dimensions:	301½×36½×12 feet	
Guns:	3—3 inch d.p., 4—40 mm. AA. (two twin), 5—20 mm. AA.	
A/S weapons:	1 Mk. 10 ahead throwing weapon; 6 K-guns; 2 depth charge racks aft	
Machinery:	Triple expansion. 2 shafts. I.H.P.: 5,500=20 kts.	
Boilers:	2, of 3-drum type	
Oil fuel:	646 tons	
Radius:	9,600 miles at 12 kts.	
Complement:	140	

General
Former Canadian frigates of the "River" class. Purchased in 1947. Modernised with new guns and fire control equipment at New York Naval Shipyard in 1952.

Nomenclature
Formerly known as *Teniente Ferre* and *Teniente Palacios*, respectively.



PALACIOS

1964, Peruvian Navy, Official

Pennant Numbers
Given "FE" instead of "F" pennant numbers in the 1957-58 to 1959-60 editions, and a port broadside view of Ferré in the 1960-61 to 1963-64 editions. 66 and 65, respectively, in 1960.

Disposal
The frigate Galvez (ex-U.S.S. Woonsocket, PF 32) former patrol frigate of the United States "Tacoma" class, was scrapped in 1961.

SUBMARINES

4 "Abato" Class (U.S. Built)

ABTAO (ex-Tiburón)	DOS DE MAYO (ex-Lobo)
ANGAMOS (ex-Atún)	IQUIQUE (ex-Merlin)
Displacement:	825 tons standard, 1,400 tons submerged
Dimensions:	243 (o.a.)×22 (max.)×4 (max.) feet
Guns:	1—5 inch, 25 cal. (Abtao and 2 de Mayo)
Torpedo tubes:	4—21 inch (bow), 2—21 inch (aft)
Machinery:	2 General Motors single acting, two-cycle, non-reversible, type 278A diesels. 2 shafts. B.H.P.: 2,400=16 kts. surface (max.)
Oil fuel:	45 tons
Radius:	5,000 miles at 10 kts.
Complement:	40

General
All built by the Electric Boat Division of the General Dynamics Corporation, Groton, Connecticut. They are of modified U.S. "Mackerel" class.

Nomenclature
Lobo means wolf, *Tiburón* means shark. The names of all Peruvian submarines were changed in Apr. 1957 by a supreme decree of the President of the Republic of Peru. The names now used are in honour of famous Peruvian naval battles.

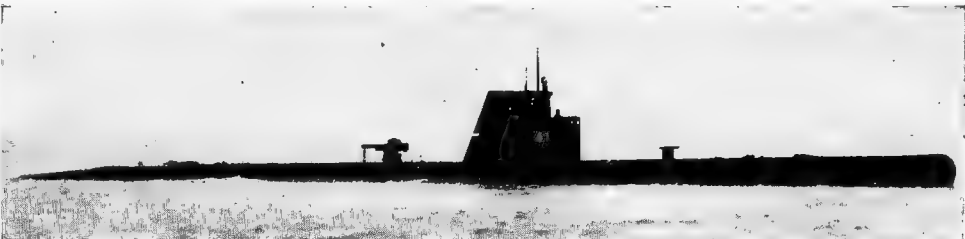
Pennant Numbers
Pennant numbers were changed from 5, 7, 6 and 8 to SS 2, SS 3, SS 1 and SS 4, respectively, in 1959, and were again changed to 42, 43, 41 and 44, respectively, in 1960.

Photographs
A photograph of Abtao appears in the 1954-55 to 1959-60 editions, of all four submarines of this class together in the 1959-60 edition, and of Angamos in the 1960-61 to 1963-64 editions.



IQUIQUE

1964, Peruvian Navy, Official



2 DE MAYO

1960, Peruvian Navy, Official

Name	No.	Laid down	Launched	Completed	Disposals
Abtao	42	12 May 52	27 Oct. 53	20 Feb. 54	The four old submarines of the "R" class, Arica (ex-R 4), Casma, (ex-R 2), Islay (ex-R 1) and Pacocha (ex-R 3), (see full particulars and photographs in the 1959-60 and earlier editions), were officially deleted from the list in 1960, and scrapped.
Angamos	43	27 Oct. 55	5 Feb. 57	1 July 57	
2 de Mayo	41	12 May 52	6 Feb. 54	14 June 54	
Iquique	44	27 Oct. 55	5 Feb. 57	1 Oct. 57	

PATROL VESSELS (Corvettes)

2 "Galvez" Class. Ex-U.S. MSF Type

DIEZ CANESCO (ex-U.S.S. Shoveler, MSF 382)	GALVEZ (ex-U.S.S. Ruddy, MSF 380)
Displacement:	890 tons standard (1,250 tons full load)
Dimensions:	215 (w.l.), 221½ (o.a.)×32½×10½ feet
Guns:	1—3 inch, 50 cal. d.p., 2—40 mm. AA
A/S weapons:	1 hedgehog
Machinery:	Diesel electric. 2 shafts. B.H.P.: 3,532=18 kts.
Complement:	100

General
Former U.S. "Auk" class fleet minesweepers, MSF (ex-ocean minesweepers, AM), of the large steel hulled type. Both built by Gulf Shipbuilding Corp. Activated at San Diego, California, and transferred to the Peruvian Navy under the Mutual Defence Assistance Programme on 1 Nov. 1960. Minesweeping gear was removed and sonar equipment fitted so that they could be used as patrol vessels. The 3 inch gun director was also removed. A photograph of Diez Canesco appears in the 1961-62 to 1964-65 editions.

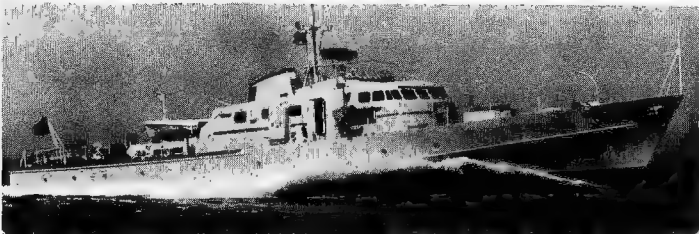
Name	Pennant No.	Laid down	Launched	Completed
Diez Canesco	69	1 Apr. 1944	10 Dec. 1944	28 June 1945
Galvez	68	24 Feb. 1944	29 Oct. 1944	28 Apr. 1945



GALVEZ

1965, Peruvian Navy, Official

FAST PATROL BOATS

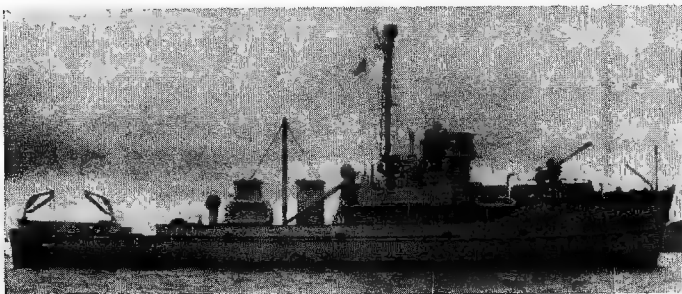


VELARDE 1965, courtesy Vosper Ltd., Portsmouth, England, Builders
6 Vosper Type
DE LOS HEROS 23 LARREA 25 SANTILLANA 22
HERRERA 24 SANCHEZ CARRION 26 VELARDE 21

Displacement: 100 tons
Dimensions: 110×20×5½ feet
Guns: 2 M.G.
Machinery: Napier Deltic diesels. Speed=25 kts.
Complement: 25 (4 officers and 21 ratings).

General
Ordered in 1963. Designed and built by Vosper Ltd., Portsmouth, England, for the Peruvian Navy. Of all-welded steel construction with aluminium upperworks. Designed for coastal patrol, air-sea rescue, and fishery protection. Equipped with Vosper roll damping fins, Decca Type 707 true motion radar, comprehensive radio, up-to-date navigation aids, and air-conditioning. The first boat, *Velarde*, was launched on 10 July 1964, the last, *Sanchez Carrion*, on 18 Feb. 1965. Can be armed as gunboat, torpedo boat or minelayer. Fitted with sonar equipment and depth charges.

COASTAL MINESWEEPERS



SAN MARTIN 1958, Peruvian Navy, Official
2 "Bondy" Class.

BONDY (ex-YMS 25) **SAN MARTIN** (ex-YMS 35)
Displacement: 300 tons standard (325 tons full load),
Dimensions: 136×24½×6 feet
Guns: 1—3 inch, 2—20 mm. AA.
Machinery: 2 G.M. diesels. B.H.P.: 1,000=13 kts. (11 kts. econ.)
Oil fuel: 20 tons
Radius: 1,600 miles at 8 kts.
Complement: 30

General
Former U.S. motor minesweepers of the YMS type. Of wooden construction, *Bondy* was built by Greenport Basin & Construction Co., Long Island, N.Y., and launched on 28 Jan. 1943, *San Martin* was built by C. Hildebrandt Drydock Co., Kingston, N.Y., and acquired from the U.S.A. in 1947.
Formerly known as *Alferez de Fragata Bondy* and *Guardiamarina San Martin*. Pennant Nos. were changed from 27 and 29 to 137 and 06 respectively, in 1964.

MOTOR LAUNCHES



RIO TUMBES 1961, Peruvian Navy, Official
4 "Rio" Class.

RIO EL SALTO 03 **RIO TUMBES 02**
RIO PIURA 04 **RIO ZARUMILLA 01**
Displacement: 37 tons full load
Dimensions: 65½×17×3½ feet
Guns: 2—40 mm.
Machinery: 2 G. M. diesels. 2 shafts. B.H.P.: 1,200=18 kts.
Radius: 1,000 miles at 14 kts.

General
Built by Korody Corp., Navaltecnica Internazionale S.p.A., Cantieri Navali Fratelli Benetti, Viareggio, Italy. KPL 181 type. Ordered in 1959, laid down on 15 July 1959, delivered in May 1960, and entered service on 5 Sep. 1960.
There are also the ex-U.S. small patrol craft YP 99, YP 242 and YP 243.

RIVER GUNBOATS



MARAÑÓN 1962, Peruvian Navy, Official

2 "Maranon" Class

MARAÑÓN **UCAYALI**
Displacement: 365 tons full load
Dimensions: 154½ (w.l.)×32×4 (max.) feet
Guns: 2—3 inch, 50 cal., d.p., 7—20 mm. AA. (2 twin, 3 single)
Machinery: Two sets British Polar Diesel engines. Type M441.
B.H.P.: 800=12 kts. (normal)
Range: 6,000 miles without refuelling
Complement: 40

General
Ordered early in 1950. Employed on police duties in Upper Amazon. Specially designed for carrying naval officers and men under tropical conditions. Very shallow draught. Superstructure of aluminium alloy. Mechanical ventilation. Based on Iquitos.

Name	Pennant No.	Builders	Launched	Completed
Marañón	13	John I Thornycroft & Co. Ltd., Woolston, Southampton	Apr. 1951	July 1951
Ucayali	14		7 Mar. 1951	June 1951



AMAZONAS 1959, Peruvian Navy, Official

2 "Loreto" Class

AMAZONAS **LORETO**
Displacement: 250 tons standard
Dimensions: 145×22×4 feet
Guns: 2—3 inch, 1—45 mm., 2—20 mm. AA.
Machinery: Diesel. B.H.P.: 750=15 kts.
Complement: 35

General
Designed and built by the Electric Boat Co., Groton, Conn. Launched in 1934. A photograph of Loreto appears in the 1958-59 edition. Pennant Nos. 11 and 12, respectively.

NAPÓ
Displacement: 98 tons
Dimensions: 100 (pp.), 101½ (o.a.)×18×3 feet
Guns: 3—47 mm. (3 pdr.), 2 M.G. AA.
Machinery: Triple expansion. I.H.P.: 250=12 kts.
Boilers: Yarrow
Complement: 22

General
Built by Yarrow Co. Ltd., Scotstoun, Glasgow. Launched in 1920. Of steel construction. Converted from wood to oil fuel burning. In the Upper Amazon Flotilla. Pennant No. 16.

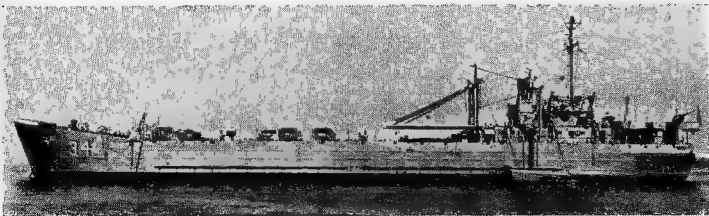
AMERICA
Displacement: 240 tons
Dimensions: 133×19½×4½ feet
Guns: 2—3 pdr., 4—12.7 mm. AA.
Machinery: Triple expansion. I.H.P.: 350=14 kts.
Complement: 26

General
Built by Tranmere Bay Development Co. Ltd., Birkenhead. Launched and completed in 1904. Of steel construction. Converted from coal to oil fuel burning. In the Upper Amazon Flotilla. Pennant No. 15.

QUITOS
Displacement: 50 tons
Dimensions: 77×12×7½ feet
Guns: 2—37 mm., 2—20 mm., 2 M.G. AA.
Machinery: Triple expansion. Speed=7 kts.

General
Built in France. Launched in 1875. Rebuilt in 1896. Refitted in 1936. Converted merchant vessel. Pennant No. 18.
Disposals
Of the six motor launches of the former United States Coast Guard type, officially rated as *Coza-Submarinos* (Submarine chasers), CS-1 and CS-2 were disposed of on 29 May 1958 and 29 May 1959, respectively, and CS-3, CS-4, CS-5 and CS-6 in Mar. 1961.

LANDING SHIPS



CHIMBOTE 1965, Peruvian Navy, Official

CHIMBOTE (ex-M/S *Rawhiti*, ex-U.S.S. LST 283) 34

Displacement: 1,625 tons standard, 4,050 tons full load
Dimensions: 328 (o.a.), 315 (pp.)×50×14½ (max.) feet
Guns: 1—3 inch
Machinery: Diesel, 2 shafts. B.H.P.: 1,700=10 kts.
Oil fuel: 600 tons (oil tanks); 1,100 tons (ballast tanks)
Radius: 24,000 miles at 9 kts.
Complement: Accommodation for 16 officers and 130 men

General
Former U.S. tank landing ship of the 1-510 Series. Built by American Bridge Co., Ambridge, Pennsylvania. Laid down on 2 Aug. 1943, launched on 10 Oct. 1943 and completed on 18 Nov. 1943. Sold to Peru by a British firm in 1951.



PAITA 1959, Peruvian Navy, Official

PAITA (ex-U.S.S. *Burnett County*, LST 512) 35 (ex-AT 4)

Displacement: 1,653 tons standard (4,080 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×14½ (max.) feet
Guns: 6—40 mm. AA.; 6—20 mm. AA.
Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,700=10 kts.
Complement: 13 officers, 106 men

General
Former U.S. tank landing ship of the 511-1152 Series. Built by Chicago Bridge & Iron Co., Seneca, Illinois. Laid down on 29 July 1943, launched on 3 Dec. 1943 and completed on 8 Jan. 1944. Purchased by Peru in 1957. Employed as a training ship for the Peruvian Naval Academy.

MEDIUM LANDING SHIPS



ATICO 1960, Peruvian Navy, Official

2 "Lomas" Class.

ATICO (ex-U.S.S. LSM 554) **LOMAS** (ex-U.S.S. LSM 396)

Displacement: 513 tons standard (913 tons full load)
Dimensions: 196½ (w.l.), 203½ (o.a.)×34½×7 feet
Guns: 2—40 mm. AA., 4—20 mm. AA.
Machinery: Diesels, 800 r.p.m. 2 shafts. B.H.P.: 3,600=12 kts.
Oil fuel: 165 tons (oil tanks)
Complement: Accommodation for 116 (10 officers and 106 men)

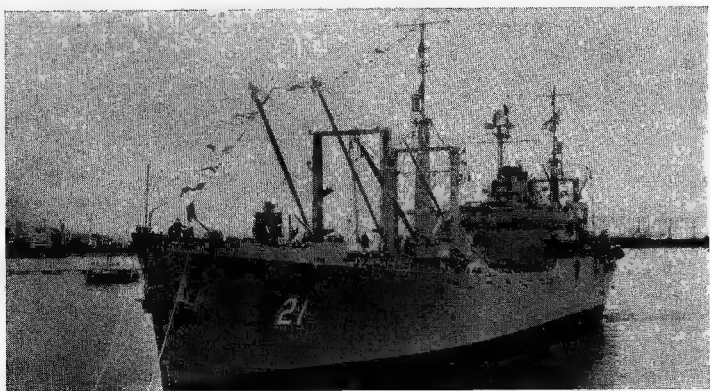
General
Former U.S. medium landing ships of the LSM type. Both built by Charleston Navy Yard, Charleston, S.C., U.S.A. Purchased by Peru in 1959.

Name	Pennant No.	Laid down	Launched	Completed
Atico	37	3 Mar. 1945	22 Mar. 1945	14 Sep. 1945
Lomas	36	13 Dec. 1944	2 Jan. 1945	23 Mar. 1945

Disposals
The landing craft of ex-U.S. LCT type, BT 1 and BT 2, were disposed of in 1958.

Floating Docks
The former United States auxiliary floating dry dock ARD 8 was transferred to Peru in Feb. 1961: displacement: 5,200 tons; dimensions: 492 feet length, 84 feet beam, 5½ to 33½ feet draught. Pennant No. changed from WY 20 to ADF 112 in 1964.
The former United States floating dock AFDL 3, launched in Oct. 1944, was transferred to Peru in July 1959:—displacement: 1,900 tons; dimensions: 288 feet length, 64 feet beam, 8½ to 31½ feet draught. Pennant No. changed from WY 19 to ADF 111 in 1964.

TRANSPORTS



INDEPENDENCIA 1964, Peruvian Navy, Official

INDEPENDENCIA (ex-U.S.S. *Bellatrix*, AKA 3, ex-Raven, AKA 20) 21

Displacement: 6,194 tons light (14,225 tons full load)
Measurement: Maritime Commission deadweight, 8,656 tons
Dimensions: 435 (w.l.), 459 (o.a.)×63×26½ feet
Machinery: 1 Nordberg diesel, 1 shaft. B.H.P.: 6,000=16.5 kts.

General
Former U.S. attack cargo ship. Built by Tampa Shipbuilding Co., Tampa, Florida, in 1941. Transferred to Peru at Bremerton, Washington on 20 July 1963 under the Military Aid Programme. Training ship for the Peruvian Naval Academy.

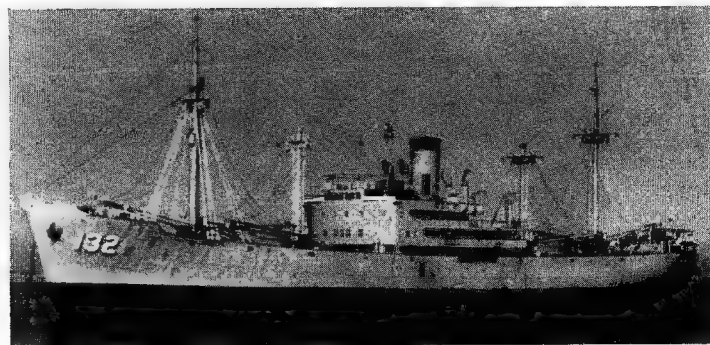


ILO 1962, Peruvian Navy, Official

ILO (ex-Norlindo)

Displacement: 8,385 tons full load
Dimensions: 388½×50½×9 feet
Machinery: Diesels, 1 shaft. B.H.P.: 1,700=10.5 kts.

General
Built at Sturgeon Bay, Wis., U.S.A., by Leatham D. Smith Shipbuilding Co., in 1945. Acquired by the Peruvian Navy from Benham and Boyesen Inc., Norway in 1959. Pennant No. changed from 33 to 133 in 1964.



CALLAO 1965, Peruvian Navy, Official

CALLAO (ex-Monserrate)

Displacement: 7,790 tons full load
Measurement: 5,578 tons gross
Dimensions: 459×56×22 feet (depth 35 feet)
Machinery: 2 diesel motors. Speed=14 kts.
Complement: 100 (13 officers, 87 ratings)

General
Former Hamburg America liner. Built by Bremen Vulkan Yard, Bremen-Vegesack. Launched in 1938. Salvaged and seized on 1 Apr. 1941 by the Peruvian Government, after scuttling by the Germans. Employed as a troop transport and cargo carrier. Pennant No. changed from 32 to 132 in 1964.

Disposals
The German type transport *Rimoc* (ex-Eten, ex-Rhakotis) was scrapped in July 1960.
Disposals of Supply Ships
The fleet supply ships and oilers *Cabo Blanco* (ex-Mariscall Castilla, ex-Preserver) and *Organus* (ex-Olaya) of the Canadian type, were scrapped in 1961.

WATER CARRIER

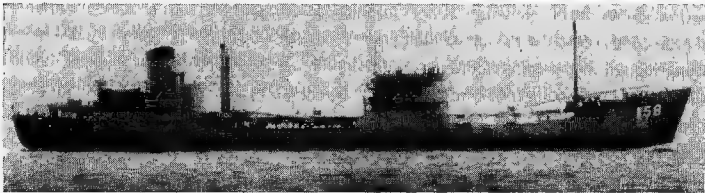
ACA 141 (ex-U.S. YW 122)

Displacement: 1,235 tons full load
Dimensions: 174×32 feet
Capacity: 200,000 gallons.

General
Former U.S. water barge. Built by Henry C. Grebe & Co. Inc., Chicago, Ill. Lent to Peru in July 1963.

Disposal of Rescue Ship
The submarine salvage vessel *Guardian Rios* was stricken on 10 July 1958.

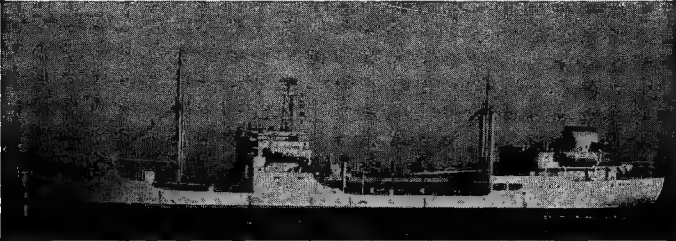
OILERS



ZORRITOS 1964, Peruvian Navy, Official

SECHURA **ZORRITOS**
Displacement: 8,700 tons
Measurement: 4,300 tons gross, 6,000 tons deadweight
Dimensions: 385 (o.a.), 360 (w.l.)×52×21½ (max.) feet
Machinery: Burmeister & Wain diesel, B.H.P.: 2,400=12 kts. (13.25 kts. on trials)
Boilers: 2 Scotch with Thornycroft oil burners for cargo tank cleaning

General
Sechura, built by John I. Thornycroft & Co. Ltd., Woolston Southampton, England, was laid down late in 1952, launched on 12 Nov. 1954 and completed in Feb. 1955. Designed for transferring fuel to warships at sea. Zorritos, built by Servicio Industrial de la Marina in the Arsenal Naval del Callao, Peru, was laid down on 8 Oct. 1955, and launched on 8 Oct. 1958. Pennant Nos. were changed from 54 and 58 to 154 and 158, respectively, in 1964.
A photograph of Sechura appears in the 1956-57 to 1963-64 editions.

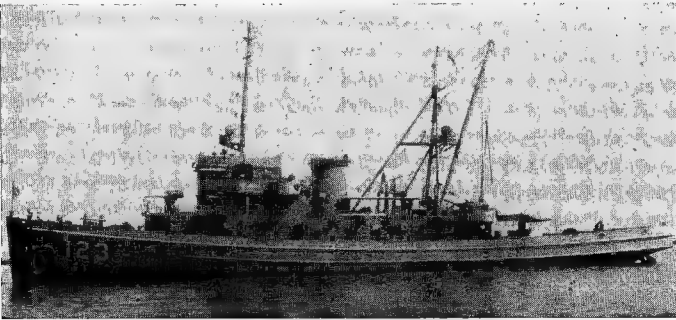


TALARA Official

LOBITOS **TALARA**
Displacement: 7,000 tons
Measurement: 4,800 tons deadweight (about 35,000 barrels)
Dimensions: 336½×50½×22½ feet
Machinery: Burmeister & Wain diesel, Type 562,VT-F115, B.H.P.: 2,400=12 kts.

General
Talara, built in Denmark to the requirements of Lloyd's Register was laid down early in 1953 by Burmeister & Wain's Maskin-Og Skibsbygger, Copenhagen, and completed in 1955. Pennant No. changed from 53 to 153 in 1964.
Lobitos, built by Servicio Industrial de la Marina in the Arsenal Naval del Callao, Peru, was launched in May 1965.
Disposal
The old oiler Parinas (ex-Sjomand) of the Thornycroft type was scrapped in 1961.

TUGS



RIOS 1962, Peruvian Navy, Official

RIOS **I Ex-U.S. ATF Type**
(ex-U.S.S. Pinto, ATF 90)
Displacement: 1,235 tons standard (1,675 tons full load)
Measurement: 195 (w.l.), 205 (o.a.)×38½×12 (mean), 15½ (max.) feet
Machinery: 4 diesels with electric drive. B.H.P.: 3,000=16.5 kts.
General
Former United States fleet ocean tug of the "Apache" class. Launched on 5 Jan. 1943. Transferred to Peru in 1960 and delivered in Jan. 1961. Fitted with powerful pumps and other salvage equipment. Pennant No. 123.

UNANUE **I Ex-U.S. ATA Type**
(ex-U.S.S. Wateree, ATA 174)
Displacement: 534 tons standard (852 tons full load) official revised figure
Dimensions: 133½ (w.l.), 143 (o.a.)×33½×13½ feet
Machinery: General Motors diesel-electric B.H.P.: 1,500=13 kts.
General
Former United States auxiliary ocean tug of the "Maricopa" class. Built by Livingston S.B. Co., Orange, Texas. Laid down on 5 Oct. 1943, launched on 18 Nov. 1943 and completed on 20 July, 1944. Purchased from the U.S.A. in Nov. 1961 under MAP. Pennant No. 136.
Disposal
Of the two ex-U.S. ATR type tugs, Selendon (ex-U.S.S. ATR 31) was officially stricken from the Navy List on 18 Sep. 1964, and Olaya (ex-U.S.S. ATR 25) was scrapped in 1961.

PARAGUAY

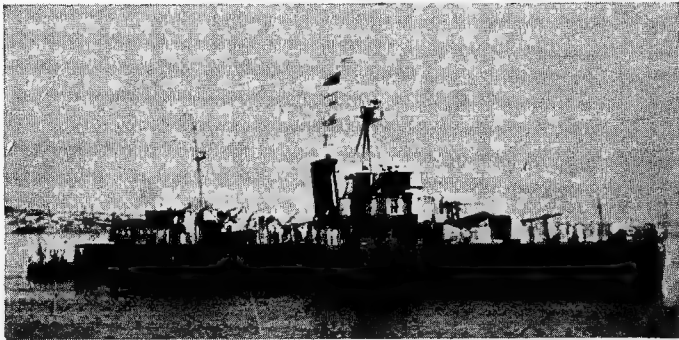
Administration

Commander of the Navy: Capitan de Navio Don Benito Pereira Saguier

Personnel

1965: 1,900 officers and men, including coastguard and marines.

RIVER GUNBOATS (Canoneros)



PARAGUAY Added 1957, Official

2 "Humaita" Class

Name	No.	Builders	Laid down	Launched	Completed
HUMAITA (ex-Capitan Cabral)	C 2	Odero, Genoa	Apr. 1929	1930	May 1931
PARAGUAY (ex-Comodoro Meya)	C 1	Odero, Genoa	Apr. 1929	1930	May 1931

Displacement: 636 tons standard (865 tons full load)
Dimensions: 231×35×5½ feet
Guns: 4—4.7 inch, 4—3 inch AA., 2 M.G.
Mines: 6
Armour: 1" side amidships, ½" deck, ½" C.T.
Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 3,800=17 kts.
Boilers: 2
Oil fuel: 150 tons
Radius: 1,700 miles at 16 kts.
Complement: 86

General
Rated as gunboats but also fitted for minelaying. The armour is of high tensile steel.

I Ex-Argentinian Minesweeper

BOUCHARD
Displacement: 450 tons standard, 620 tons normal (650 tons full load)
Dimensions: 164 (pp.), 197 (o.a.)×24×8½ (max.) feet
Guns: 4—40 mm. Bofors AA.; 2 M.G.
Machinery: 2 sets M.A.N. 2-cycle diesels, B.H.P.: 2,000=16 kts.
Oil fuel: 50 tons
Radius: 3,000 miles at 12 kts.
Complement: 70

General
Former Argentinian minesweeper of the "Bouchard" class. Built at Rio Santiago Naval Shipyard. Laid down in 1935. Launched on 20 Mar. 1936. Can carry mines. Transferred from the Argentinian Navy to the Paraguayan Navy in Apr. 1964.

PATROL LAUNCHES (Launchas Patrulleras)

2 Ex-U.S. Coast Guard Cutters

P 1 (ex-U.S.C.G.C. 20417) **P 2** (ex-U.S.C.G.C. 20418)
Displacement: 16 tons
Dimensions: 45½ (o.a.)×13½×3½ feet
Guns: 2—20 mm. AA.
Machinery: 2 petrol motors, 2 shafts. H.P.: 190=20 kts.
Complement: 10

General
Of wooden construction. Built in the United States in 1944. Acquired from the United States Coast Guard in 1944.

RIVER PATROL BOATS (Avisos de Guerra)

CORONEL MARTINEZ
Displacement: 80 tons
Dimensions: 71½×18×8½ feet
Guns: 1—3 inch, 2—37 mm.
Machinery: I.H.P.: 150=6.5 kts.
General
Medium type of river patrol boat and general utility craft. Pennant No. A. 2.
CAPITAN CABRAL (ex-Adolfo Riquelme)
Displacement: 180 tons standard (206 tons full load)
Dimensions: 98½ (pp.), 107½ (o.a.)×23½×9½ feet
Guns: 1—3 inch Vickers, 2—37 mm. Vickers, 4 M.G.
Machinery: Triple expansion, 1 shaft. I.H.P.: 300=9 kts.
Complement: 47

General
Former tug. Built by Werf-Conrad, Haarlem. Launched in 1907. Of wooden construction. Pennant No.: A.1. A photograph appears in the 1954-55 to 1963-64 editions.

TENIENTE HERREROS
Displacement: 41 tons
Dimensions: 63½×11×6½ feet
Guns: 4 M.G.
Machinery: I.H.P.: 300=5.5 kts.

General
Small type of river patrol boat. Built in the Netherlands in 1908. Pennant No.: A. 3.
Small Tug
The small harbour tug YTL 559 was transferred to Paraguay by the U.S.A. under the Military Aid Programme in Mar. 1963. (66½×17×5 feet. Diesel, 300 H.P.). Built by Everett Pacific S.B. & D.D. Co., Wash.

PHILIPPINES

Administration

Naval, Military and Air Attaché in Washington:
Brigadier General Ismael D. Lapuz.

Personnel

1965: 5,000 officers and men

Mercantile Marine

Lloyd's Register of Shipping:
174 vessels of 454,201 tons.

Flag Officer in Command, Philippine Navy:
Commodore Santiago C. Nuval, P.N.

Ships

Ships names are prefixed by R.P.S. (Republic of Philippines Ship). Names adopted are geographical locations, mostly provinces.

Naval, Military and Air Attaché in London:
Colonel Isauro M. Sison.

ESCORT PATROL VESSELS

COMMAND SHIPS



NEGROS OCCIDENTAL 1965, Philippine Navy, Official

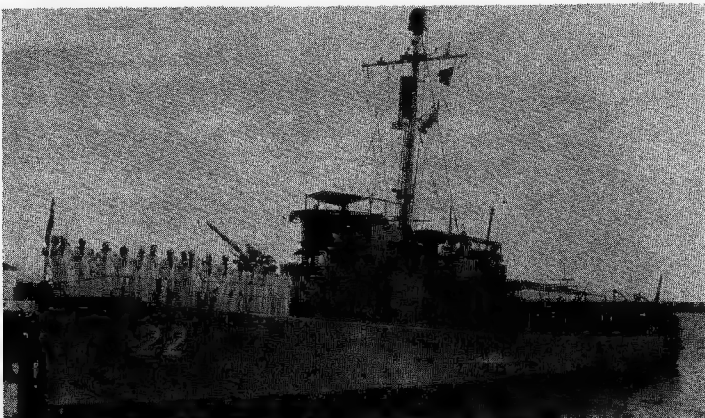
CEBU E 28 (ex-PCE 881) LEYTE E 30 (ex-PCE 885)
ILOILO E 32 (ex-PCE 897) NEGROS OCCIDENTAL E 29 (ex-PCE 884)
PANGASINAN E 31 (ex-PCE 891)

Displacement: 640 tons standard (903 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.)×33×9½ feet
Guns: 1—3 inch, 3—40 mm. (E31, 6—40 mm.), 4—20 mm.
Machinery: 2 G.M. diesels, 2 shafts. B.H.P.: 1,800=15 kts.

General
Former U.S. escorts. Built in Portland, Oregon, U.S.A., by Albina Eng. & Mach. Works (E 28, 29, 30) and Willamette Iron & Steel Corp. (E 31, 32). All launched in 1943-44. A photograph of Leyte appears in the 1956-57 to 1964-65 editions. Samar M 33 (ex-U.S.S. Project, AM 278) was turned over to the Bureau of Coast and Geodetic Survey on 19 May 1960.

MURRELET (ex-U.S. MSF 372, ex-AM 372)
Displacement: 890 tons standard (1,250 tons full load)
Dimensions: 215 (w.l.), 221 (o.a.)×32½×10½ (max.) feet
Guns: 2—3 inch, 50 cal. (single); 4—40 mm. AA. (2 twin); 4—20 mm. AA. (2 twin)
A/S weapons: 1 ASW projector; 1 ASW triple-barrel torpedo mounting; 2 D.C. projectors, 2 D.C.T.
Machinery: Diesel-electric, 2 shafts. B.H.P.: 3,532=18 kts.

General
Former U.S. fleet minesweeper of the "Auk" class. Built by Savannah Machine & Foundry Co. Launched on 24 Dec. 1944. Transferred on 18 June 1965. Minesweeping gear removed. Used as an escort patrol ship and re-designated PCE.



BOHOL 1965, Philippine Navy, Official

BATANGAS C 24 (ex-PC 1134) CAPIZ C 27 (ex-PC 1564)
BOHOL C 22 (ex-PC 1131) NUEVA ECIZA C 25 (ex-PC 1241)

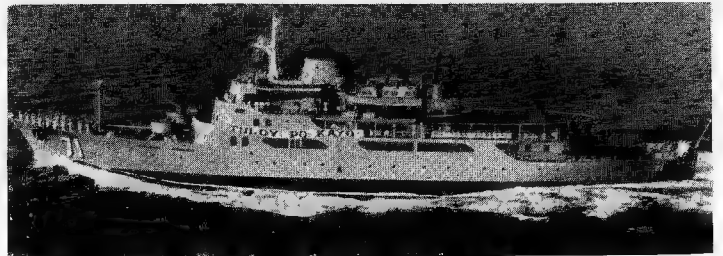
Displacement: 330 tons standard (450 tons full load)
Dimensions: 173½ (o.a.)×23×10½ feet
Guns: 1—3 inch d.p., 1—40 mm. AA., 5—20 mm. AA.
Machinery: 2 G.M. diesels, 2 shafts. B.H.P.: 3,600=18 kts.

General
Former U.S. submarine chasers of steel construction. Built in 1942-44. Transferred in 1947-48. Zamboanga del Sur C 23 (ex-PC 1133) was stricken on 16 Nov. 1956. Negros Oriental, C 26 (ex-PC 1563), sank in a typhoon at Guam in Nov. 1962, was raised, but stricken on 24 Jan. 1963.

LAGUNA P 12 (ex-PCS 1403) TARLAC P 11 (ex-PCS 1399, ex-YMS 450)

Displacement: 230 tons standard (300 tons full load)
Dimensions: 136 (o.a.)×24½×8½ feet
Guns: 1—3 inch, 1—40 mm., 4—20 mm.
Machinery: 2 G.M. diesels, 2 shafts. B.H.P.: 800=14 kts.

General
Former U.S. submarine chasers of wooden construction. Built in 1943-44. Transferred in Jan. 1958. Photograph of Laguna in the 1956-57 to 1961-62 editions.



ROXAS 1965, Philippine Navy, Official

ROXAS (ex-Lapu-Lapu)

Measurement: 2,200 tons gross
Guns: 2—40 mm.; 2—20 mm. AA.
Machinery: B. & W. diesels, 2 shafts. B.H.P.: 5,000=16-5 kts.

General
Formerly the Presidential Yacht. Acquired from Japan under the reparation payment programme. Built at Ishikawajima, Japan. Launched in 1958 and completed in 1959. Originally named *Lapu-Lapu* after the chief who killed Magellan. On 9 Oct. 1962 the ship was recommissioned and renamed *Roxas* after the late Manuel Roxas, first President of the Philippine Republic.

The command ship *Rajah Soliman* D 66 (ex-U.S.S. Bowers, APD 40, ex-DE 637) sank in a typhoon at Bataan National Shipyard in June 1964, was raised, but stricken on 3 Dec. 1964.

Two destroyer escorts (see full particulars in the 1964-65 edition) were due from Japan under reparations, but no further news of this project has been officially promulgated. The loan of a destroyer escort by U.S.A. was authorised in 1964.



PAGASA 1965, Philippine Navy, Official

PAGASA TP 21 (ex- Santa Maria, ex-Pagasa, ex-Apo 21, ex-U.S.S. Quest, AM 281)

Displacement: 650 tons standard (945 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.)×33×9½ feet
Guns: 1—3 inch, 4—20 mm. AA.
Machinery: Diesel, 2 shafts. B.H.P.: 1,710=14 kts.

General
Former U.S. fleet minesweeper. Built by Gulf S.B. Corp. Launched on 16 Mar. 1944. Of steel construction. Converted into Presidential Yacht.

COASTAL MINESWEEPERS



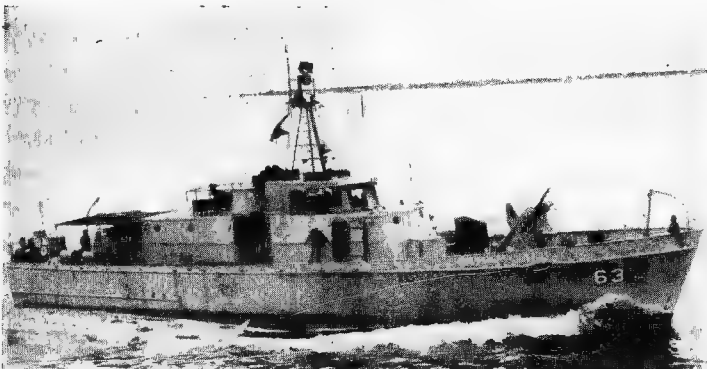
ZAMBOANGA DEL NORTE 1965, Philippine Navy, Official

ZAMBALES M 55 (ex-U.S.S. MSC 218)
ZAMBOANGA DEL NORTE M 56 (ex-U.S.S. MSC 219)

Displacement: 335 tons standard (375 tons full load)
Dimensions: 138 (pp.), 144 (o.a.)×27×8½ feet
Machinery: G.M. diesels, 2 shafts. B.H.P.: 880=14 kts.

General
Non-magnetic coastal minesweepers of the U.S. "Bluebird" class. *Zambales* was built by Bellingham Shipyard Co., Washington, laid down in Aug. 1954 and launched on 25 Feb. 1955. Both were transferred under MAP and commissioned at Seattle, Wash., on 7 Mar. and 23 Apr. 1956, respectively.

PATROL BOATS



ROMBLON
1962, courtesy Mr. W. H. Davis

AGUSAN G 61 (ex-PGM 39)
ANTIQUE G 51 (ex-PGM 36)
CAMARINES SUR G 48 (ex-PGM 33)
CATAN DUANES G 62 (ex-PGM 40)
LA UNION G 50 (ex-PGM 35)
MASBATE G 52 (ex-PGM 37)
MISAMIS OCCIDENTAL G 53 (ex-PGM 38)

PALAWAN G 64 (ex-PGM 42)
ROMBLON G 63 (ex-PGM 41)
SULU G 49 (ex-PGM 34)
YACHI G 57 (ex-PGM)
YANGA G 59 (ex-PGM)
YUNDI G 60 (ex-PGM)

Displacement: 95 tons standard (143 tons full load)
Dimensions: 110×17×6½ feet
Guns: 1—60 mm. mortar, 2—40 mm. AA., 4—50 cal. M.G.
Machinery: Diesel, 2 shafts. B.H.P.: 1,540=18 kts.

General
G 40-53 were built by Georgia Shipbuilding Co., St. Mary's Georgia. Motor gun-boats with the basic design of the former 110 ft. SC type of the U.S. Navy. The first four were delivered to the Philippine Navy in 1955 and G 52 and G 53 in 1956. G 61-64 were built by Tacoma Boatbuilding Co., Tacoma, Washington, for transfer under MAP. All steel, G 61, completed in Aug. 1959, and G 62 were transported to the Philippines aboard ship in Feb. 1960, followed by G 63 and G 64 in Apr. 1960. A photograph of Camarines Sur appears in the 1956-57 to 1961-62 editions.

ALERT P 16 (ex-SC 1267)
CAVITE P 19 (ex-SC 981)

MALAMPAY SOUND P 20 (ex-SC 1274)
MOUNTAIN PROVINCE R 15 (ex-SC 736)
SURIGAO P 17 (ex-SC 747)

Displacement: 85 tons standard (130 tons full load)
Dimensions: 111 (o.a.)×17×6 feet
Guns: 1—40 mm. AA., 3—20 mm. AA.
Machinery: Diesels, 2 shafts. B.H.P.: 1,000=14.18 kts.

General
Former U.S. small submarine chasers of wooden construction. Built in 1942-43. Transferred in 1946-48. Cagayan P 14 (ex-SC 731), Ilocos Sur P 16 (ex-SC 739) and Isabella P 18 (ex-SC 750) were stricken in 1956 when one was transferred to the Bureau of Customs.

REPAIR SHIP



AKLAN
1965, Philippine Navy, Official

AKLAN (ex-U.S.S. Romulus, ARL 22, ex-LST 926)

Displacement: 1,625 tons light (4,100 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×11 feet
Guns: 8—40 mm. AA.
Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,800=11.6 kts.

General
Former U.S. landing craft repair ship transferred to the Philippine Navy under the Military Aid Programme in Nov. 1961.

SURVEY SHIP

New Construction
A survey ship is to be built in Queensland at a cost of £A250,000 as a gift from Australia under the SEATO Aid Agreement.
The survey ship *Sequala*, ex-U.S. Coast Guard buoy tender, is no longer on the Navy list. Sister ship *Anemone* was stricken from the list in 1957.

HYDROFOIL PATROL BOATS

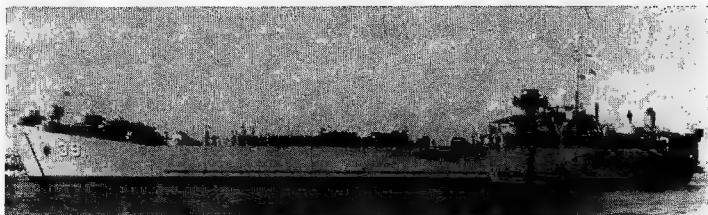
2 New Construction

CAMIGUIN 72
SQUIJER 73

Displacement: 28 tons
Measurement: 60 tons gross
Dimensions: 68½×15½ (24½ foils)×7 feet
Guns: 1—20 mm. AA.
A/S weapons: 1 torpedo launcher
Machinery: Mercedes Benz diesel (MB 20, 12 cyl.), 2 shafts. B.H.P.: 1,250=38 kts.

General
Built by Cantiere Navale Leopoldo Rodriguez, Italy (Messina, Sicily) for the Philippine Navy. Laid down on 26 May and 28 Oct. 1964 for delivery in Apr. 1965. For military use and police patrol.

LANDING SHIPS



ALBAY
1965, Philippine Navy, Official

ALBAY T 39 (ex-LST 865)
BULACAN T 38 (ex-LST 843)
MISAMIS ORIENTAL T 40 (ex-LST 875)

Displacement: 1,625 tons light (4,080 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×14 (max.) feet
Guns: 7—40 mm. AA., 2—20 mm. AA.
Machinery: Diesel, 2 shafts. B.H.P.: 1,800=12 kts.

General
Former U.S. landing ships of the LST type. Cotobato, T 36 (ex-LST 75) and Pampanga T 37 (ex-LST 842) were stricken. LST 72 and LCU 117 were sold.



BATANES
1962, courtesy Mr. W. H. Davis

BATANES LP 65 (ex-U.S.S. LSM 236)
ISABELA LP 41 (ex-U.S.S. LSM 463)
ORIENTAL MINDORO LP 68 (ex-U.S.S. LSM 320)

Displacement: 743 tons beaching (912 tons full load)
Dimensions: 196½ (w.l.), 204 (o.a.)×34½×8½ feet
Guns: 2—40 mm. AA.
Machinery: Direct drive diesel, 2 shafts. B.H.P.: 2,800=12.5 kts.

General
Former medium landing ships. Batanes was transferred to the Philippines on 15 Sep. 1960 at Seattle, Washington. Isabella was refloated on 1 Jan. 1964 after being aground since Sep. 1963.
Davao 1 34 (ex-LCI 1058) and Lanao 1 35 (ex-LCI 1059), former U.S. Infantry Landing Craft used as lighthouse tenders, are no longer on the Navy List.

Coastguard Utility Boats
There are 15 ex-U.S. Coast Guard Cutters, Nos. 100-114. No names assigned.

OILERS

LAKE NAUJAN Y 43 (ex-U.S. YO 173)

Displacement: 521 tons standard (1,400 tons full load)
Dimensions: 174 (o.a.)×32×13½ feet
Guns: 2—20 mm.
Machinery: Diesel, B.H.P.: 560=8 kts.

General
Ex-U.S. YO type. A photograph appears in the 1953-54 to 1960-61 editions. The small oiler *Lake Taal* Y 41 (ex-Y 19) is no longer on the Navy List.

LIGHTHOUSE TENDERS

BOJEADUR L 46 (ex-U.S. FS 203)
LOUIS LEDGE L 45 (ex-U.S. FS 185)

Displacement: 470 tons standard (811 tons full load)
Dimensions: 180 (o.a.)×32×10 feet
Machinery: Diesel, 2 shafts. B.H.P.: 1,000=11 kts.

General
Ex-U.S. FS type. Photograph of *Louis Ledge* in 1956-57 and 1957-58 editions.

PEARL BANK L 47 (ex-U.S. OL 4)

Displacement: 162 tons standard (301 tons full load)
Dimensions: 120 (o.a.)×24×8 feet
Guns: 2—20 mm. AA.
Machinery: Diesel, 2 shafts. B.H.P.: 240=6 kts.

General
Ex-OL type. A photograph appears in the 1953-54 to 1957-58 editions.

WATER CARRIER

LAKE LANAO Y 42 (ex-U.S. YW 125)

Displacement: 1,235 tons full load
Dimensions: 174 (o.a.)×32×15 feet
Guns: 2—20 mm. AA.
Machinery: Diesel, B.H.P.: 640=9 kts.

TUGS

IFUGAO R 44 (ex-U.S. ATR 96)

Displacement: 534 tons standard (852 tons full load)
Dimensions: 134½ (w.l.), 143 (o.a.)×33×13½ feet
Guns: 1—3 inch, 2—20 mm.
Machinery: Diesel-electric, B.H.P.: 1,500=13 kts.

General
Rescue tug returned to U.S. from United Kingdom, and then transferred to the Philippines. Photograph in the 1956-57 to 1957-58 editions.

IGOROT 222 (ex-YTL 572)
MARANAO 221 (ex-YTL 574)
MANGYAN 223 (ex-ST 1312)

General
Small harbour tugs. U.S. YTL 429 and 449 were transferred under MAP in 1963.

POLAND

Administration

Commander of the Polish Navy:
Vice-Admiral Zdzislaw Studzinski,

Chief of Naval Staff:
Rear-Admiral Ludwik Janczyszyn.

Naval, Military and Air Attaché in London:
Colonel M. Roman.

Naval, Military and Air Attaché in Washington:
Colonel Eugeniusz Wysokinski.

Ships

Strength, 1965: 5 destroyers, 8 submarines, 45 patrol vessels, 32 minesweepers, 36 landing craft, 11 auxiliaries, 55 service craft.

Polish warship names are prefixed by "O.R.P."

Personnel

1965: 20,020 (1,820 officers and 18,200 men)

Mercantile Marine

Lloyd's Register of Shipping:
384 vessels of 988,382 tons gross

DESTROYERS (Niszczyciele)



WICHER

1965, Polish Navy, Official

4 Ex-U.S.S.R. "Skoryi" Class

GROM (ex-Smetlivyi)	WICHER (ex-Skoryi)
Displacement:	2,600 tons standard (3,500 tons full load)
Dimensions:	393½ (pp.), 420 (o.a.)×41×15 feet
Guns:	4—5.1 inch (2 twin); 2—3 inch AA.; 7—37 mm. AA.
Tubes:	10—21 inch (2 quintupled)
A/S weapons:	4 D.C.T.
Mines:	80 capacity
Machinery:	Geared turbines, 2 shafts. S.H.P.: 70,000=36 kts.
Boilers:	4 high pressure
Oil fuel:	700 tons
Radius:	4,000 miles at 15 kts.
Complement:	280

General
Former Soviet destroyers of the first "Skoryi" type. Wicher was in fact the prototype of the class. Two were delivered by the U.S.S.R. to Poland on 15 Dec. 1957 (Grom) and 28 June 1958 (Wicher), Pennant



GROM

1959, Sergel Romanov

Nos. 53 and 54, respectively. "Grom" means Thunderbolt. "Wicher" means Hurricane.

Two more of the "Skoryi" class are reported to have transferred from the U.S.S.R. to Poland in 1961.

BLYSKAWICA

Pennant No.:	271
Builders:	J. Samuel White & Co. Ltd., Cowes, Isle of Wight
Laid down:	1935
Launched:	1 Oct. 1936
Completed:	1937
Displacement:	2,144 tons standard (3,383 tons full load)
Dimensions:	357 (pp.), 374 (o.a.)×37×10½ feet
Guns:	8—4 inch AA., 10—37 mm. AA.
Tubes:	3—21 inch (tripled)
A/S weapons:	4 D.C.T., 22 D.C. and racks
Machinery:	Parsons geared turbines, 2 shafts. H.P.: 54,000=39 kts.
Boilers:	4, of 3-drum type
Complement:	180

General
Name means Lightning. Originally fitted for minelaying, and could carry 7 mines; but no longer has minelaying capabilities. Bows were strengthened for ice navigation. The original armament was 7—4.7 mm. AA., 4 M.G., 6—21 inch tubes (tripled), 2 D.C.T. The ship was completely dismantled in 1958 down to the hull, and superstructure was entirely rebuilt and armament modified in 1959-60.



BLYSKAWICA

1965, Polish Navy, Official

Engineering
Boilers work at 385 lbs. per sq. inch pressure with 200 degrees of superheat. Ship exceeded her designed speed on trials.

Disposal
The old destroyer Burza was officially withdrawn from active service with the Polish Navy in 1962 to be used as a museum ship.

ESCORT VESSEL

New Construction

Displacement:	1,030 tons standard
Dimensions:	288½×31½×10½ feet
Guns:	3—3.9 inch, 8—37 mm. AA.

Tubes:	3—21 inch
Mines:	Fitted for laying
Machinery:	Geared steam turbines, 2 shafts. S.H.P.: 24,000=28 kts.

Construction
The construction of an escort vessel or frigate is in the early stages. A transitional type based on the design of the Soviet "Riga" class, she is being built in the Polish yard at Gdynia.

SUBMARINES (Okrety Podwodne)

6 Ex-U.S.S.R. "M" Type

KASZUB P 105 KUJAWIAK 305 MAZUR 302
KRAKOWIAK 303 MAZOWSZE 306 SLAZAK 304
(ex-Kurp) (ex-Podhalanin)

Displacement: 350 tons surface (420 tons submerged)
Dimensions: 167½×16×11½ feet
Guns: 1—37 mm. AA.
Tubes: 2—21 inch
Machinery: Diesels, B.H.P.: 1,000=13 kts. (surface)
Electric motors, H.P.: 800=10 kts. (submerged)
Oil fuel: 21 tons
Radius: 4,000 miles at 8 kts. (surface).
90 miles at 3 kts. (submerged)
Complement: 24

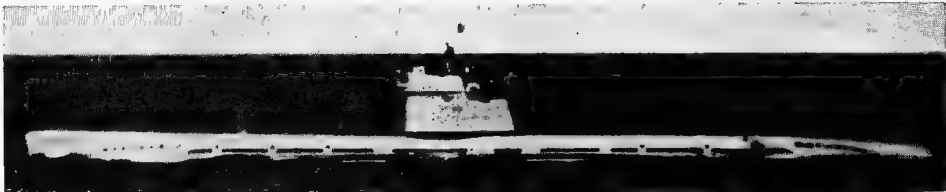
General
Former Soviet "MV" Class, coastal submarines M 100-105. All built in 1944-1950. Transferred to the Polish Navy in 1956-57. One (said to be Kurp) ran aground and was so badly damaged that she was at one time reckoned a total loss, but it is reported that she has been renamed Mazoweze.

Transfer
Two "W" class submarines were sold by Poland to Indonesia in Aug. 1959, and there were then reports that they were to be replaced.



KASZUB

1965, Polish Navy, Official



KUJAWIAK

1958, Sergel Romanov

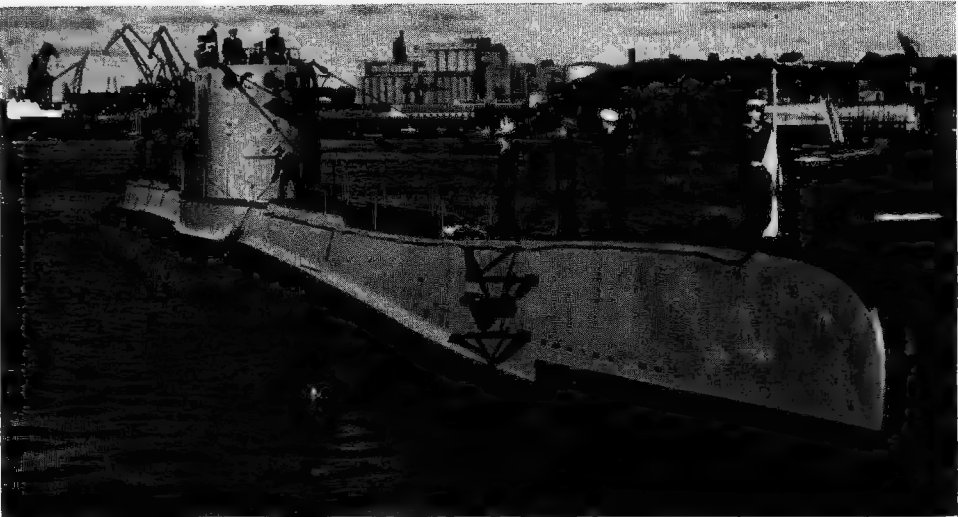
ORZEL

General
Now in service with the Polish Navy. Reported to be of the "W" class, but in 1965 there was no official confirmation of the precise type.

SEP

Builders: Rotterdam Dry Dock Co.
Laid down: 1936
Launched: 17 Oct. 1938
Completed: 1939

Displacement: 1,092 tons surface (1,450 tons submerged)
Dimensions: 273½ (pp.), 275½ (o.a.)×22×13 feet
Guns: 1—4.1 inch, 2—40 mm. AA.
Tubes: 8—21 inch
Mines: 40
Machinery: 2 Sulzer Diesels, B.H.P.: 4,740 =19 kts. surface
Electric motors, H.P.: 1,000=9 kts. submerged
Complement: 56



SEP

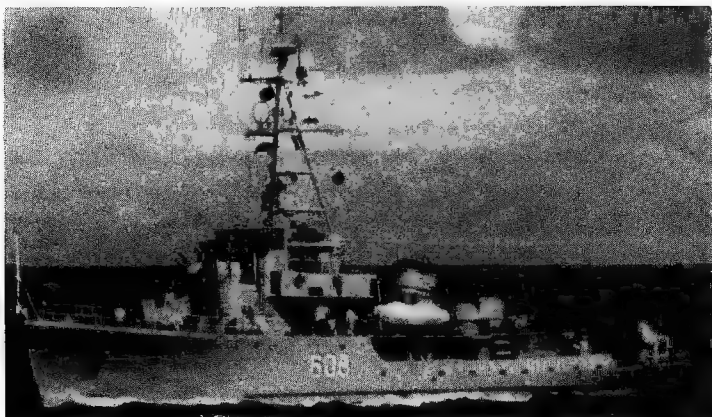
1965, Polish Navy, Official

General
Sep means Vulture. Fitted for minelaying. Now over age and used for initial sea training purposes. Another

photograph appears in the 1939 to 1957-58 editions. Pennant No. 291. Sister ship Orzel (Eagle) was lost in June 1940.

Disposals:
The three submarines of the "Wilk" class, Rys, Wilk and Zbik, were broken up in 1957.

FLEET MINESWEEPERS



ZBIK

1965, Polish Navy, Official

12 Ex-U.S.S.R. "T43" Type

BIZON 605 DZIK 604 MORS 610 ZBIK 608
BOBR 606 FOKA 609 ROSOMAK 607 ZUBR 601
DELFIN 611 LOS 603 TUR 602 612

Displacement: 410 tons standard (530 tons full load)
Dimensions: 200×27½×9 feet
Guns: 4—37 mm. AA., 8—13 mm. M.G. AA.
Machinery: Diesel motors, 2 shafts. Speed 18 kts.

General
Fleet minesweepers of the Soviet "T43" type built in Poland at Stocznia Gdynska, Gdynia, in 1957-62. A photograph of Tur appears in the 1958-59 edition, and of Los in the 1959-60 to 1964-65 editions.

PATROL VESSELS



NIEUGIETY

1965, Polish Navy, Official

8 Ex-U.S.S.R. "Kronstadt" Class

CZUINY 368 NIEUGIETY 361 ZAWZIETY 363 ZWINNY 365
GROZNY 362 WYTRWALY 367 ZRECZNY 366 ZWROTNY 364

Displacement: 300 tons standard
Dimensions: 167½×19½×9 feet
Guns: 1—3.9 inch, 2—37 mm. AA., 4—13 mm. M.G. AA.
Machinery: 2 diesels. Speed=27 kts.

General
Former Soviet submarine chasers of the "Kronstadt" class. Four built in 1953 were acquired by Poland in 1957. Grozny, Wytrwaly, Zreczny Zwinny (names mean Strong, Energetic, Clever and Speedy), were delivered on 15 Dec. 1957. A photograph of Zwrotny appears in the 1958-59 to 1964-65 editions.

COASTAL MINESWEEPERS (Tralowce)



CZAJKA 1965, Polish Navy, Official

4 "Bird" Class

CZAJKA (10 Apr. 1935) D 45 RYBITWA (26 Apr. 1935) D 46
MEWA (1935) KOMPAS, ex-Zuaw (22 Aug. 1938)

Displacement: 140 tons standard (183 tons full load)
Dimensions: 139½×21½×5½ feet
Guns: 2—37 mm., 2 M.G., except Kompas, none
Machinery: Diesel, B.H.P.: 1,040=15 kts.
Complement: 30

General
All built in Poland, Mewa and Kompas at Gdynia, Czajka and Rybitwa at Modlin. Launch dates above. Recovered from German hands in 1945. Czajka (meaning Lapwing) had been renamed Westerplatte, Mewa means Seagull, and Rybitwa, Tern; these two were renamed MT 6 and 7 respectively, by the Germans. Kompas is used as a surveying vessel, HG 11. A photograph of Mewa appears in the 1958-59 to 1964-65 editions. (20 minesweeping boats were built in Polish yards, 1955-60.)

MOTOR TORPEDO BOATS (Scigacze torpedowe)

20 Ex-U.S.S.R. "P6" Type

KT 93	KT 97	KT 101	KT 105	KT 109
KT 94	KT 98	KT 102	KT 106	KT 110
KT 95	KT 99	KT 103	KT 107	KT 111
KT 96	KT 100	KT 104	KT 108	KT 112

Displacement: 68 tons full load
Dimensions: 83×20×6 (max.) feet
Guns: 4—25 mm. AA., 8 D.C.
Tubes: 2—21 inch
Machinery: 4 diesels. B.H.P.: 4,800=43 kts.

General
Acquired from the U.S.S.R. in 1957-58. (A new series of M.T.B.'s of Polish design, with gas turbines, is reported to have been constructed in Polish yards.)



MTB 409 1965, Polish Navy, Official

10 Ex-U.S.S.R. "PA 5" Type

KT 400 (ex-83)	KT 403 (ex-86)	KT 406 (ex-89)
KT 401 (ex-84)	KT 404 (ex-87)	KT 407 (ex-90)
KT 402 (ex-85)	KT 405 (ex-88)	KT 408 (ex-91)
		KT 409 (ex-92)

Displacement: 50 tons standard
Dimensions: 85½×20×6 feet
Guns: 4—25 mm. AA. (two twin mountings)
Tubes: 2—21 inch
Machinery: Diesel motors. Speed circa 50 kts.

General
Motor torpedo boats of the Soviet "PA 5" class. Launched from 1956 onwards.

10 Ex-U.S.S.R. "PA 3" Type

KT 71	KT 73	KT 75	KT 77	KT 79
KT 72	KT 74	KT 76	KT 78	KT 80

Displacement: 40 tons standard (50 tons full load)
Dimensions: 85×20×6 feet
Guns: 4—25 mm. AA. (two twin)
Tubes: 2—21 inch
Machinery: Diesels. Speed=40 kts.

General
Ex-Soviet boats of the "PA 3" type. Built of wood. Launched in 1953-55.

LANDING CRAFT

There are 17 utility landing craft, 7 of German design, 300 tons displacement full load, 131×26×5 (max.) feet, 3 diesels, B.H.P.: 1,000=12 kts., 1-77, 1—37 mm. guns, crew 19; and 10 of U.S. LST (5) class, 286 tons standard, 177½×32×4 (max.) feet, 3 diesels, B.H.P.: 670=8 kts., crew 17.

TRAINING SHIPS (Okrety szkolne)



GRYF 1958, Wright & Logan

GRYF (ex-Zetempowicz, ex-Opplen, ex-Omsk, ex-Empire Conteas, ex-Irene Oldendorf)

Measurement: 1,959 tons gross
Dimensions: 282½×44½×18½ feet
Guns: 2—3.9 inch, 4—37 mm. AA.
Machinery: Steam engines. H.P.: 1,200=10 kts.

General
Former German "Hansa" class ship. Built by Burmeister & Wain. Launched in 1944. Taken over in 1947. Transferred to the Navy in 1949. The name was changed from Zetempowicz to Gryf in 1957. Reported to be used as a hospital ship.

ISKRA (ex-Pigmy, ex-Iskra, ex-St. Blanc, ex-Vlissinghr)

Displacement: 560 tons
Dimensions: 128×25×10 feet
Machinery: Diesel engines. B.H.P.: 250=7.5 kts.
Complement: 30, plus 40 cadets

General
A three masted schooner with auxiliary motors. Built by Muller, Foxhol, Holland. Launched in 1917. A photograph of Iskra appears in the 1961-62 edition.

Dar Pomorza (ex-Prinz Eitel Friedrich), see full details and photograph in the 1961-62 edition, is a training ship of the Polish Merchant Marine.

PATROL BOATS

8 "OP" Type

OP 101	OP 103	OP 105	OP 107
OP 102	OP 104	OP 106	OP 108

Displacement: 120 tons
Dimensions: 124½×19½×5 feet
Guns: 2—37 mm. AA. Depth charges
Machinery: Diesel motors. Speed: 20 kts.

General
Similar to the German R-boat type. Built at Gdynia. Launched in 1956. (Eight units of the "Gdansk" class patrol craft, including OP 212, built in 1960, and four units of the "Oksywie" class patrol craft, have also been reported.)

9 "KP" Type

KP 118	KP 120	KP 122	KP 124	KP 126
KP 119	KP 121	KP 123	KP 125	

Displacement: 60 tons
Guns: 2 M.G. AA. (in twin mounting)
Machinery: 3 speed: 15 kts.

General
Small patrol boats reported to be under the jurisdiction of the Frontier Guard.

SURVEYING VESSELS (Okret hydrograficzne)

BALTYK
Displacement: 1,000 tons
Measurement: 658 tons gross, 450 tons deadweight
Dimensions: 194½ (o.a.), 175½ (pp.)×29½×14 feet
Machinery: Steam engine, H.P.: 1,000=11 kts.

General
Trawler of B-10 type. Built in 1944 in Gdansk. Converted and structure altered.

The hydrographic vessels *Zodiac* and *Kozlorozec* (see details in the 1961-62 edition) are no longer on the Navy List. They belong to the Shipping Board of Gdansk.

OILERS (Ropowiec)

ZOLW (ex-Stutthof)

General
Displacement: 450 tons. Name changed from Stutthof to Zolw (Turtle) in 1961.

KRAB

SLIMAK

General
Measurement 300 tons deadweight. Krab means Crab and Slimak means Snail. Small tankers built in 1958 at Gdansk.

There are also Z 1, Z 2 and Z 3, 300 tons gross with diesels, converted into tankers; water tanker (wodotankowiec) *Plehmindorf* of 500 tons displacement.

Auxiliaries

Cable ship *Kablowiec*, converted from a freighter of 800 tons gross 130×15×5 feet; fuel oil ship *Meduza* of 98×15×8 feet, crew 8; degaussing ships *Uran* and *Urania*; and the new icebreaker *Perkum*, 800 tons twin-screw diesel-electric, built by P. K. Harris & Sons, Appledore, Devon, England.

PORTUGAL

Administration

Minister of Marine:
Rear-Admiral Fernando Quintanilha
Mendonça Dias

Chief of Naval Staff:
Vice-Admiral Armando Julio de Roboredo
e Silva

Naval Attaché in London:
Commander Leonel A. G. Cardoso, Po.N.

Naval Attaché in Washington:
Commander Vicente Almeida D'Eca, Po.N.

Personnel

1965: 14,520 (1,320 officers and 13,200 men)
including marines

Navy Estimates

1962: Escudos 605,496,335
1963: Escudos 1,056,903,259
1964: Escudos 1,250,324,896
1965: Escudos 1,328,122,400

Mercantile Marine

Lloyd's Register of Shipping:
341 vessels of 701,676 tons gross

Silhouettes

Scale: 150 ft. = 1 inch.



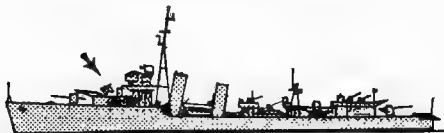
PERO ESCOBAR



ALVARES CABRAL, PACHECO PEREIRA,
D. FRANCISCO DE ALMEIDA, VASCO DA GAMA



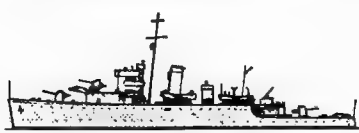
BARTOLOMEU DIAS



LIMA, VOUGA



NUNO TRISTÃO



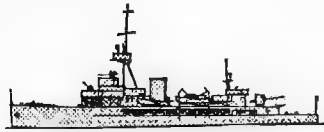
GONÇALVES ZARCO



CORTE REAL, DIOGO CÃO



DIOGO GOMES



JOÃO DE LISBOA, PEDRO NUNES

DESTROYERS (Contratorpedeiros)

2 "Vouga" Class

Name:	LIMA	VOUGA
Pennant No.:	D 333	D 334
Launched:	29 May 1933	25 Jan. 1933
Completed:	Nov. 1933	June 1933
Displacement:	1,238 tons standard (1,563 tons full load)	
Dimensions:	307 (pp.), 323 (o.a.)×31×11 (mean) feet	
Guns:	2—4.7 inch, 5—40 mm. AA., 3—20 mm. AA.	
Tubes:	4—21 inch (quadrupled)	
Mines:	Rails fitted and 20 mines carried	
A/S weapons:	1 Squid triple-barrelled depth charge mortar	
Machinery:	Parsons geared turbines, S.H.P.: 22,000=30 kts. (approx.)	
Boilers:	3 Yarrow	
Oil fuel:	345 tons	
Radius:	3,000 miles at 11 kts.	
Complement:	184 (normal)	

General

Of Yarrow type. Built at Scotstoun by Yarrow & Co. Ltd., as were the machinery and boilers. Refit during 1946-49 by Yarrow including shortening the after funnel, stepping a new tripod foremast, increase in anti-aircraft armament and installation of sonar equipment and radar.



VOUGA

1961, Portuguese Navy, Official

Again refitted in 1957 with modified armament, improved anti-submarine capabilities, and installation of ahead throwing weapons (squid mountings). The side thrown projectors were removed, and only two of the depth charge tracks retained.

Gunnery

Two of the five 40 mm. AA. guns are in a twin mounting.

Engineering

The boilers work at a steam pressure of 400 lb. per sq. in.

Disposal

The unconverted ship of this class, Douro, was discarded in Dec. 1959. Of the converted ships Dão was discarded on 29 Nov. 1960 and Tejo on 9 Feb. 1965.

FAST ANTI-SUBMARINE FRIGATE (Fragata) Light Destroyer Type

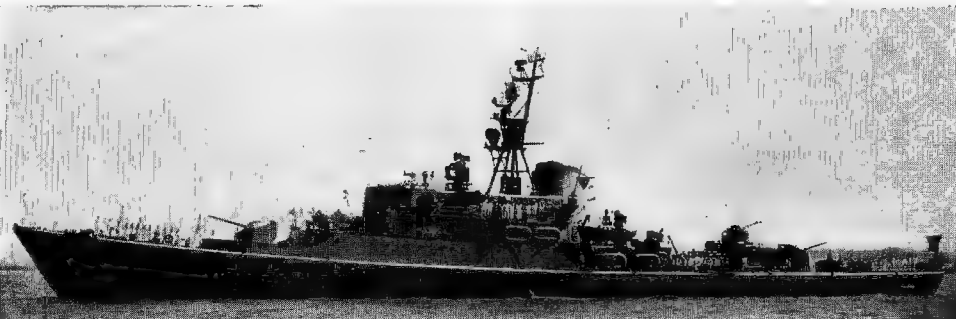
1 "Pero Escobar" Class

PERO ESCOBAR

Pennant No.:	F 335
Builders:	Navalmecanica, Castellammare di Stabia, Italy
Laid down:	7 Jan. 1955
Launched:	25 Sep. 1955
Completed:	July 1957
Displacement:	1,250 tons standard (1,600 tons full load)
Dimensions:	295½ (pp.), 306½ (w.l.), 321½ (o.a.)×35½×10 feet
Guns:	4—3 inch, 50 cal. d.p. AA. (two twin) as modernised
Tubes:	6 A/S (two triple) as modernised
A/S weapons:	2 Squid triple-barrelled depth charge mortars
Machinery:	Geared turbines. 2 shafts. S.H.P.: 24,000=32 kts.
Boilers:	2 Ansaldo-Foster Wheeler
Oil fuel:	236 tons
Radius:	2,800 miles at 13.5 kts.
Complement:	165 (normal)

General

A "light destroyer" or fast anti-submarine escort vessel built to the order of NATO for the Portuguese Navy.



PERO ESCOBAR

1961, Portuguese Navy, Official

Gunnery

The armament before modernisation comprised two single 3 inch A. guns, two 40 mm. AA. (twin mount), four 20 mm. AA. (two twin mounts) and three 21 inch torpedo tubes.

Photographs

A larger starboard broadside view appears in the

1957-58 edition, and another in the 1959-60 and 1960-61 editions.

Modernisation

Modernised in 1965-66, the alterations including the fitting of new guns, sonar and anti-submarine torpedo tubes similar to those in the "Almirante Pereira da Silva" class frigates (see next page).

FAST FRIGATES (Fragatas)

4 New Construction
French "Commandant Riviere" Type

General
The construction of these ships was begun on 1 Oct. 1964 at the Ateliers et Chantiers de Nantes, France. They are similar to the French type except the 30 mm. AA. guns which will be replaced by 40 mm. AA. guns.

3 New Construction

ALMIRANTE MAGALHÃES CORREIA F 474
ALMIRANTE PEREIRA DA SILVA F 472
COMANDANTE JOÃO BELO F 473

- Displacement: 1,450 tons standard (1,950 tons full load)
- Dimensions: 315×37×14 (max.) feet
- Guns: 4—3 inch, 50 cal., d.p. AA. (2 twin)
- A/S weapons: 2 four-barrelled Bofors rocket-launchers, 2 D.C. throwers
- Tubes: 6 A/S (two triple)
- Machinery: De Laval geared turbine. 1 shaft. S.H.P.: 20,000=25 kts.
- Boilers: 2 Foster-Wheeler
- Oil fuel: 400 tons (to be reviewed)
- Radius: 4,500 miles at 15 kts.
- Complement: 176 (provisional)

General
The construction of two of these U.S. "Dealey" type escort ships was begun in 1961 at Lisnave Shipyard (formerly Navalis Shipyard), Lisbon, and the construction of a third was begun in 1962 at Estaleiros Navaais de Viana do Castelo.

2 "Diogo Cão" Class

CORTE REAL (ex-U.S.S. McCoy Reynolds, DE 440)
DIOGO CÃO (ex-U.S.S. Formoe, DE 509)

- Name: Corte Real Diogo Cão
- Pennant No.: F 334 F 333
- Builders: Federal S.B. & D.D. Federal S.B. & D.D. Co., Port Newark Co., Port Newark
- Launched: 22 Feb. 1944 2 Apr. 1944
- Completed: 2 May 1944 5 Oct. 1944

- Displacement: 1,350 tons standard (2,100 tons full load)
- Dimensions: 306 (o.a.)×35½×11 (max.) feet
- Guns: 2—5 inch, 38 cal.; 10—40 mm. AA. (3 twin mounts, 1 quadruple mount)
- A/S weapons: 1 hedgehog, 8 D.C.T., 2 D.C. tracks
- Machinery: Geared turbines. 2 shafts. S.H.P.: 12,000=24 kts.
- Boilers: 2
- Oil fuel: 340 tons
- Radius: 4,000 miles at 12 kts.
- Complement: 200 (normal)



DIOGO CÃO

1961, Portuguese Navy, Official



CORTE REAL

1959, Portuguese Navy, Official

General
Former U.S. destroyer escorts or escort ships of the "John C. Butler" class, transferred to the Portuguese Navy at San Francisco, California, on 7 Feb. 1957 and renamed after Portuguese navigators. Torpedo Tubes
The original 3—21 inch torpedo tubes in these ships were removed.

FRIGATES (Fragatas)

4 "Alvares Cabral" Class
Ex-British "Bay" Class

ALVARES CABRAL (ex-H.M.S. Burghhead Bay)
D. FRANCISCO DE ALMEIDA (ex-H.M.S. Morecambe Bay)
PACHECO PEREIRA (ex-H.M.S. Bigbury Bay)
VASCO DA GAMA (ex-H.M.S. Mounts Bay)

- Displacement: 1,600 tons standard (2,850 tons full load)
- Dimensions: 286 (pp), 307½ (o.a.)×38½×12½ feet (15½ feet max.)
- Guns: 4—4 inch, 6—40 mm. AA. (2 twin)
- A/S weapons: 1 Hedgehog, 4 D.C. throwers, 2 D.C. tracks
- Machinery: Triple expansion. 2 shafts. I.H.P.: 5,500=19.5 kts.
- Boilers: 2 Admiralty 3-drum type
- Oil fuel: 680 tons
- Radius: 7,500 miles at 10 kts.
- Complement: 168 (normal)

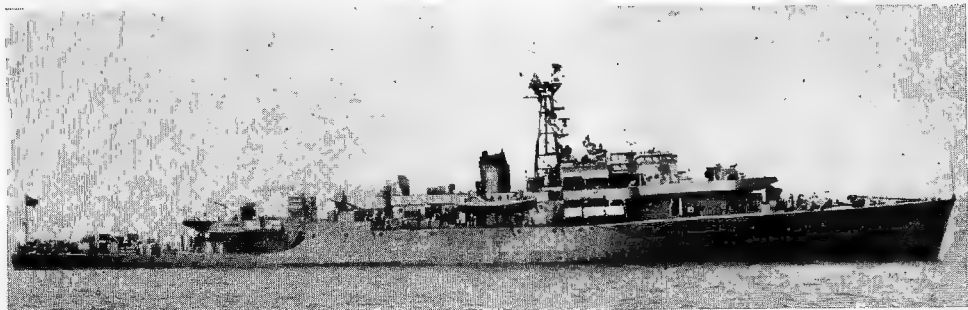
General
Former British frigates of the "Bay" class, designed primarily for anti-aircraft escort duties.

Transfer
Alvares Cabral and Pacheco Pereira were purchased from Great Britain in Apr. 1959 and officially transferred to the Portuguese Navy at Plymouth on 11 May 1959.

D. Francisco de Almeida and Vasco da Gama were purchased from Great Britain in May 1961 and modernised before delivery by John I. Thornycroft & Co. Ltd., Woolston, Southampton, where they were commissioned in the Portuguese Navy on 3 Aug. 1961.

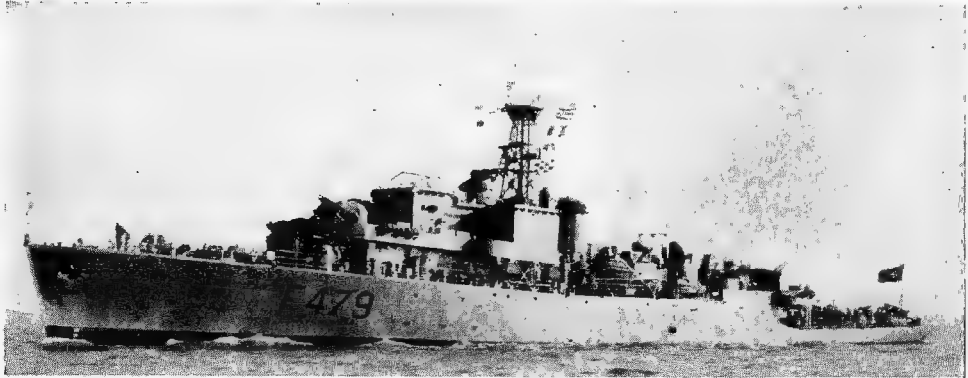
Photographs
A photograph of Pacheco Pereira appears in the 1959-60 edition, and of Alvares Cabral in the 1960-61 to 1962-63 editions.

Construction
T=Completed by John I. Thornycroft & Co. Ltd., Woolston, Southampton.
W=Completed by J. Samuel White & Co. Ltd., Cowes, Isle of Wight



PACHECO PEREIRA

1964, Portuguese Navy, Official



D. FRANCISCO DE ALMEIDA

1963, Portuguese Navy, Official

No.	Name	Builders	Laid down	Launched	Completed
F 336	Alvares Cabral	Charles Hill & Sons Ltd., Bristol	21 Sep. 44	3 Mar. 45	20 Sep. 45
F 479	D. Francisco de Almeida	Wm. Pickersgill Ltd., Sunderland	30 Apr. 44	1 Nov. 44	22 Feb. 49
F 337	Pacheco Pereira	Hall Russell & Co. Ltd., Aberdeen	30 May 44	16 Nov. 44	10 July 45
F 478	Vasco da Gama	Wm. Pickersgill Ltd., Sunderland	23 Oct. 44	8 June 45	11 Apr. 49

2 "Diogo Gomes" Class Ex-British "River" Class

DIOGO GOMES (ex-H.M.S. Awe)
NUNO TRISTÃO (ex-H.M.S. Avon)

Names:	Diogo Gomes	Nuno Tristão
Pennant No.:	F 331	F 332
Builders:	Fleming & Ferguson Ltd., Paisley	Charles Hill & Sons Ltd., Bristol
Laid down:	27 May 1943	8 Jan. 1943
Launched:	28 Dec. 1943	19 June 1943
Completed:	21 Apr. 1944	18 Sep. 1943
Displacement:	1,460 tons standard, 1,865 tons normal (2,450 tons full load)	
Dimensions:	283 (pp.), 301½ (o.a.)×36½×12 (15 max.) feet	
Guns:	2—4 inch, 6—40 mm. AA.	
A/S weapons:	2 Squid triple-barrelled depth charge mortars, 2 depth charge tracks (see Anti-Submarine notes)	
Machinery:	Triple expansion, 2 shafts. I.H.P.: 5,500=18 kts.	
Boilers:	2 Admiralty 3-drum type	
Oil fuel:	600 tons	
Radius:	7,000 miles at 10 kts.	
Complement:	175 (normal)	



NUNO TRISTÃO

Added 1961, Tom Molland Ltd.

General

Former British frigates of the "River" class. Purchased from Great Britain in 1948 and transferred to Portugal in May 1949. The originally designed standard displacement was 1,370 tons.

were improved by the installation of two squid triple-barrelled depth charge mortars, the four side thrown depth charge projectors were removed and only two depth charge racks were retained.

Photographs

A port bow view of *Diogo Gomes* appears in the 1958-59 to 1960-61 editions.

Anti-Submarine

Refitted in 1959 when the anti-submarine capabilities

1 "Afonso de Albuquerque" Class (Rated as *Aviso de Primeira Classe*)

BARTOLOMEU DIAS

Pennant No.:	F 471
Builders:	R. & W. Hawthorn Leslie & Co., Ltd., Hebburn-on-Tyne
Laid down:	24 May 1933
Launched:	10 Oct. 1934
Completed:	May 1935

Displacement:	1,788 tons standard (2,439 tons full load)
Dimensions:	326½×44½×12½ feet (mean)
Guns:	4—4.7 inch, 50 cal., 2—3 inch AA., 8—20 mm. AA.
A/S weapons:	4 D.C. throwers, 2 D.C. tracks
Mines:	Capacity 40
Machinery:	Parsons geared turbines. S.H.P.: 8,000=21 kts.
Boilers:	2 Yarrow
Oil fuel:	580 tons
Radius:	10,000 miles at 10 kts.
Complement:	184 (normal)

General

The original contract for this ship was placed with Odero-Terni-Orlando in 1931, but cancelled in 1932, and the design was modified by the new builders when



BARTOLOMEU DIAS

1964, Captain C. A. Teixeira da Silva, Commanding Officer

a fresh contract was made. The ship made 22 kts. on trials without being pressed. *Bartolomeu Dias* no longer has a white band around her funnel since she has pennant number painted on bows. Designed for overseas service. Fitted to carry 40 mines.

Loss

Sister ship *Afonso de Albuquerque* was lost in action on 18 Dec. 1961 during the Indian invasion of Goa.

Disposals

Of the two frigates of the "*Goncalo Velho*" class, rated as Second Class Sloops (*Avisos de Segunda Classe*) *Goncalves Zarco* was officially discarded on 4 Nov. 1964, and *Goncalo Velho* was scrapped on 19 June 1961. (The frigate *Jodo de Lisboa*, formerly rated as a Second Class Sloop (*Aviso de Segunda Classe*), was converted in 1961 into a Survey Ship. *Navio Hidrografico*, like her sister ship *Pedro Nunes*, see next page).

SUBMARINES (Submersiveis)

4 New Construction French "Daphne" Type

General

The construction of these submarines was begun on 1 Oct. 1964 at Dubigeon Shipyard, Nantes, France. They are similar to the French type.

3 "Narval" Class Ex-British "S" Class

NARVAL (ex-H.M.S. *Spur*) **NEPTUNO** (ex-H.M.S. *Spearhead*)
NAUTILO (ex-H.M.S. *Saga*)

Displacement:	715 tons standard, 859 tons surface, 1,008 tons submerged
Dimensions:	217 (o.a.)×23½×10½ feet
Guns:	1—4 inch (see Notes)
Tubes:	6—21 inch bow (12 torpedoes)
Machinery:	Diesels. B.H.P.: 1,900=14-75 kts. surface Electric motors. H.P.: 1,300=9 kts. submerged
Oil fuel:	87 tons
Radius:	5,000 miles at 10 kts.
Complement:	45

General

"S" Class submarines all purchased from Great Britain in 1948. Built by Cammell Laird & Co. Ltd., Birkenhead. Designed for offensive operations in confined waters.

Gunnery

The 20 mm. Oerlikon gun and three Vickers gas operated machine guns formerly carried were removed in 1961.

Photographs

A photograph of *Neptuno* appears in the 1957-58 to 1962-63 editions.

Pen. No.	Name	Laid down	Launched	Completed
S 160	<i>Narval</i>	1 Oct. 43	17 Nov. 44	18 Feb. 45
S 161	<i>Nautilo</i>	5 Apr. 44	11 Mar. 45	14 June. 45
S 162	<i>Neptuno</i>	18 Aug. 43	2 Oct. 44	21 Dec. 44



NAUTILO

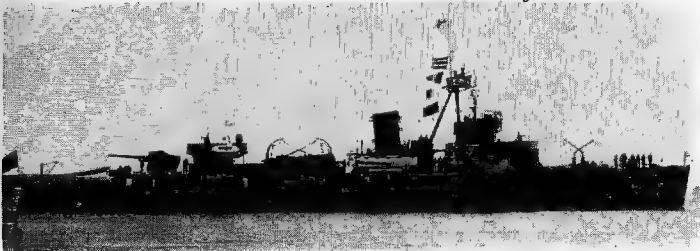
1965, Portuguese Navy, Official



NARVAL

1963, Portuguese Navy, Official

SURVEY SHIPS (Navios Hidrograficos)



JOÃO DE LISBOA 1965, Portuguese Navy, Official
2 "Pedro Nunes" Class (Ex-Sloops)

JOÃO DE LISBOA (ex-Infante D. Henrique)		PEDRO NUNES	
Displacement:	João de Lisboa: 1,109 tons standard (1,218 tons full)	Pedro Nunes: 1,090 tons standard (1,197 tons full load)	
Dimensions:	João de Lisboa: 234½ (pp.), ×33×10½ feet	Pedro Nunes: 223 (pp.), ×32½×9½ feet	
Guns:	1—4.7 inch, 50 cal.; 4—20 mm. AA. (see Gunnery)		
Machinery:	2 sets MAN 8 cyl. diesels. B.H.P.: 2,400=16.5 kts.		
Oil fuel:	110 tons normal, 126 tons max.		
Radius:	6,000 miles at 13 kts.		
Complement:	João de Lisboa: 74. Pedro Nunes: 52		

General
Unlike João de Lisboa, here sister ship, Pedro Nunes was not part of the ten-year programme introduced in 1930. Formerly rated as second class sloops (navios de segundo classe) but Pedro Nunes was converted into a survey ship in 1956, and João de Lisboa in Mar. 1961.

Gunnery
The forward 4.7 inch gun was removed from Pedro Nunes in 1956, and the forward 4.7 inch gun and the four depth charge throwers were removed from João de Lisboa in Mar. 1961 when she was converted into a survey ship.

Photographs
A photograph of Pedro Nunes appears in the 1961-62 to 1964-65 editions.

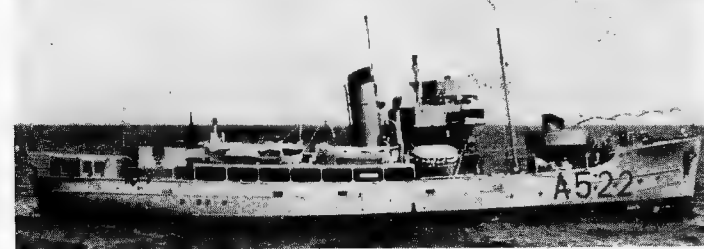
Pennant No.	Name	Builders	Laid down	Launched	Completed
A 5200	João de Lisboa	Naval Arsenal, Lisbon	18 Apr. 34	21 May 36	1 Aug. 37
A 528	Pedro Nunes	Naval Arsenal, Lisbon	5 Nov. 31	17 Mar. 34	11 Apr. 35



CARVALHO ARAUJO 1961, Portuguese Navy, Official
1 Ex-British "Flower" Class Frigate

Displacement:	1,020 tons standard (1,340 tons full load)
Dimensions:	190 (pp.), 205 (o.a.) ×33×16½ (max.) feet
Guns:	1—3 inch, 4—20 mm. AA.
Machinery:	Triple expansion. I.H.P.: 2,750=16 kts
Boilers:	2 cylindrical
Oil fuel:	288 tons
Complement:	39 (normal)

General
Former British corvette (later re-rated as a frigate) of the "Flower" class. Built by Harland & Wolff Ltd., Belfast. Laid down on 17 Dec. 1940, launched on 11 Apr. 1941, and completed on 26 Jan. 1942. Served in the French Navy during the Second World War. Sold out of the service after hostilities. Purchased by the Portuguese Navy from the Hector Whaling Company, at Capetown, in Mar. 1959, and later equipped as a surveying vessel to replace the former Carvalho Araújo (ex-British "Flower" class minesweeping sloop Jonquil) which was discarded in 1959. Pennant No.: A 524.



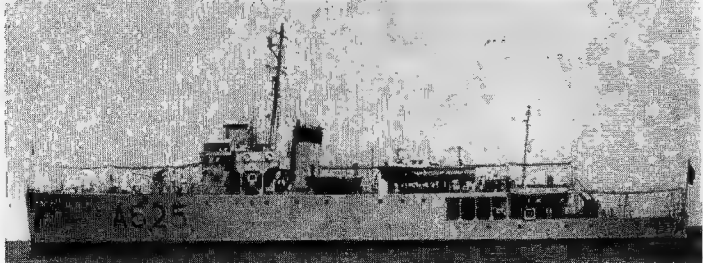
SALVADOR CORREIA 1964, Portuguese Navy, Official
1 Ex-British "Isles" Class Minesweeping Trawler

Displacement:	560 tons standard (800 tons full load)
Dimensions:	152×27½×15 feet
Guns:	2—20 mm. AA., D.C. carried
Machinery:	Triple expansion. I.H.P.: 850=12 kts.
Complement:	54

General
Former minesweeping trawler. Built by Henry Robb Ltd., Leith. Laid down on 12 Jan. 1940, launched on 6 Aug. 1940 and completed on 19 Oct. 1940. Purchased from Great Britain in 1948. Formerly rated as a patrol vessel (Navio Patrulha) and later as a minesweeper (caço-minas). The 3 inch gun was removed in 1964. Pennant No.: A 522.

Disposal.
Sister ship Baldaque da Silva (ex-Ruskholtm) was scrapped on 12 May 1961.

Survey Ships—continued



ALMIRANTE LACERDA 1961, courtesy Lieut. Guerreiro de Amorim, P.N.
1 Ex-British "Bangor" Class Fleet Minesweeper

Displacement:	672 tons standard (900 tons full load)
Dimensions:	171½ (pp.), 180 (o.a.) ×28½×9½ (max.) feet
Guns:	1—3 inch, 2—20 mm. AA.
Machinery:	Triple expansion. 2 shafts. I.H.P.: 2,400=16 kts.
Boilers:	2, of 3-drum small-tube type
Oil fuel:	160 tons
Complement:	49

General
Former British fleet minesweeper of the "Bangor" class, steam type. Built in Canada, launched on 2 June 1941, and purchased from Great Britain in 1946. Pennant No. A 525.

CORVETTE



CACHEU (ex-Comandante Almeida Carvalho) 1961, Portuguese Navy, Official
1 Ex-British "Bangor" Class Fleet Minesweeper

CACHEU (ex-Comandante Almeida Carvalho, ex-Fort York, ex- Mignon)

General
Sister ship of Almirante Lacerda above. Launched in Canada on 24 Aug. 1941. Purchased from Great Britain in 1950. Served as a survey ship until 1965 when she was converted into a corvette and her name and pennant number changed from Comandante Almeida Carvalho, A 527, to Cacheu, F 470. Particulars as above, but complement 85.

OCEAN MINESWEEPERS (Draga-minas oceânicos)



CORVO 1961, Portuguese Navy, Official
4 "S. Jorge" Class

GRACIOSA (ex-U.S.S. MSO 486)	PICO (ex-U.S.S. MSO 479)
Displacement:	665 tons standard (750 tons full load)
Dimensions:	165 (pp.), 172 (o.a.) ×35×10 (mean) feet
Guns:	1—40 mm. AA.
Machinery:	2 G.M. diesels, 2 shafts. B.H.P.: 1,600=13.5 kts. (max.)
Oil fuel:	46 tons
Radius:	3,800 miles at 10 kts. (economical speed)
Complement:	69

General
"MSO 421" class ocean minesweepers built in the U.S.A. under the Mutual Defence Assistance Programme by Burger Boat Co., Manitowoc, Wisconsin and Bellingham Shipyard Co. Constructed of wooden and non-magnetic materials.

Photographs
Photographs of S. Jorge appears in the 1956-57 to 1960-61 editions.

Engineering
The diesels of non-magnetic stainless steel alloy, are model 8-278A, two stroke cycle, non-reversible, 8-cylinder V engines. Controllable pitch propellers are fitted.

Pennant No.	Name	Builders	Laid down	Launched	Completed
M 418	Corvo	Burger Boat Co.	18 Aug. 1953	28 July 1954	23 Nov. 1955
M 417	Graciosa	Burger Boat Co.	16 May 1953	19 Nov. 1953	15 Aug. 1955
M 416	Pico	Bellingham S.Y. Co.	1 Oct. 1953	18 June 1954	1 June 1955
M 415	S. Jorge	Bellingham S.Y. Co.	26 Aug. 1953	30 Apr. 1954	24 Apr. 1955

PATROL VESSELS (Patrulhas)



SANTO ANTÃO 1963, Portuguese Navy, Official
5 Portuguese Built "Maio" Class

BOAVISTA BRAVA		FOGO	SANTA LUZIA. SANTO ANTÃO	
Displacement:	366 tons standard (400 tons full load)			
Dimensions:	170 (pp.), 173½ (o.a.)×23×10 (mean) feet			
Guns:	2—40 mm. AA., 2—20 mm. AA.			
A/S weapons:	1 Hedgehog, 4 D.C.T. 2 depth charge tracks			
Machinery:	4 SEMT-Pielstick diesels (4-stroke, 14 cylinder V), 2 shafts, B.H.P.: 3,500=19 kts.			
Oil fuel:	45 tons			
Radius:	3,900 miles at 12 kts.			
Complement:	62			
General Built in Portugal under the U.S. off-shore procurement programme. Of all-welded construction. A photograph of Brava appears in the 1958-59 to 1962-63 editions.				
Pen. No.	Name	Builders	Launched	Completed
P 592	Boavista	Estaleiros Navais do Mondego	10 July 56	17 May 57
P 590	Brava	Estaleiros Navais de Viana do Castelo	2 May 56	27 Dec. 56
P 591	Fogo	Estaleiros Navais de Viana do Castelo	2 May 56	11 Apr. 57
P 594	Santa Luzia	Arsenal do Alfeite	17 Jan. 57	24 Oct. 58
P 593	Santo Antão	Arsenal do Alfeite	8 June 56	30 Dec. 57



S. NICOLAU 1961, Portuguese Navy, Official
3 French Built "Maio" Class

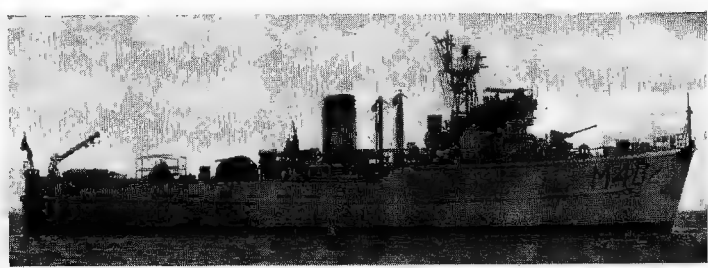
MAIO (ex-Funchal, ex-P 4)	PORTO SANTO (ex-P 5)	S. NICOLAU (ex-P 8)	
Displacement:	366 tons standard (400 tons full load)		
Dimensions:	170 (pp.), 173½ (o.a.)×23×10 feet		
Guns:	2—40 mm. AA., 2—20 mm. AA.		
A/S weapons:	1 Hedgehog, 4 D.C.T. 2 depth charge tracks		
Machinery:	4 SEMT-Pielstick, 2 shafts. B.H.P.: 3,240=17.5 kts.		
Radius:	4,000 miles at 10 kts.		
Complement:	62		
General Of PC design, but built in France as a U.S. offshore procurement order under the Mutual Defence Assistance Programme. Fitted with two mine rails.			
Pennant No.	Name	Builders	Launched
P 587	Maio	Dubigeon, Nantes	27 Sep. 1954
P 588	Porto Santo	Normand (Le Havre)	9 Feb. 1955
P 589	S. Nicolau	Normand (Le Havre)	7 June 1955



SAL 1960, Portuguese Navy, Official
6 "Principe" Class.

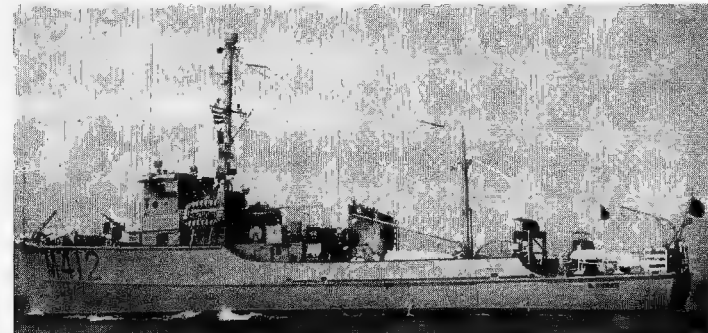
P 581	PRINCEIRO (ex-Flores, ex-PC 812)	P 583	SANTIAGO (ex-PC 1257)
P 582	MADEIRA (ex-PC 811)	P 585	S. TOMÉ (ex-PC 1256)
P 584	SAL (ex-PC 809)	P 586	S. VICENTE (ex-PC 1259)
Displacement:	318 tons standard (357 tons full load)		
Dimensions:	170 (w.l.), 173½ (o.a.)×23×11 (max.) feet		
Guns:	1—40 mm. AA., 3—20 mm. AA.		
A/S weapons:	1 Hedgehog, 4 D.C.T. 2 depth charge tracks		
Machinery:	2 Hamilton diesels, 2 shafts, B.H.P.: 3,500=19 kts.		
Complement:	62		
General Submarine chasers of the PC type purchased from U.S.A. in 1948. Named after Portuguese Atlantic Islands. For patrol and Air/Sea Rescue duties in the Azores, Madeira, and off the Portuguese coast. The armament was modified in 1957, anti-submarine weapons being added and the 3 inch guns and two 20 mm. guns being removed. A photograph of Santiago appears in the 1955-56 to 1959-60 editions.			

COASTAL MINESWEEPERS (Draga-Minas Costeiros)



RIBEIRA GRANDE 1961, Portuguese Navy, Official
4 "S. Roque" Class (British "Ton" Type)

LAGOA	RIBEIRA GRANDE	ROSARIO	* S. ROQUE
Displacement:	360 tons standard (425 tons full load)		
Dimensions:	140 (pp.), 152 (o.a.)×28½×7 feet		
Guns:	1—40 mm. AA., 2—20 mm. AA. (twin mount)		
Machinery:	2 Mirreless diesels. 2 shafts. B.H.P.: 1,250=15 kts.		
Complement:	47		
General Similar to the British "Ton" class of coastal minesweepers, but built in Portugal. All laid down at C.U.F. Shipyard, Lisbon, on 7 Sep. 1954, under the OSP-MAP. Lagoa and S. Roque were financed by U.S.A., and the other two by Portugal. A photograph of S. Roque appears in the 1957-58 edition, and of Lagoa in the 1958-59 to 1960-61 editions.			
Pennant No.	Name	Launched	Completed
M 403	Lagoa	15 Sep. 1955	10 Aug. 1956
M 402	Ribeira Grande	14 Oct. 1955	8 Feb. 1957
M 404	Rosario	29 Nov. 1955	8 Feb. 1956
M 401	S. Roque	15 Sep. 1955	4 June 1956



S. PEDRO 1961, Portuguese Navy, Official
8 "Ponta Delgada" Class

ANGRA DO HEROISMO (ex-U.S.S. AMS 62)	SANTA CRUZ (ex-U.S.S. AMS 92)
HORTA (ex-U.S.S. AMS 61)	S. PEDRO (ex-U.S.S. AMS 147)
LAJES (ex-U.S.S. AMS 146)	VELAS (ex-U.S.S. AMS 145)
PONTA DELGADA (ex-Adjutant, AMS 60)	VILA DO PORTO (ex-U.S.S. AMS 91)
Displacement:	375 tons standard (405 tons full load)
Dimensions:	138 (pp.), 144 (o.a.)X27X8 feet
Guns:	2—20 mm. AA. (twin mount)
Machinery:	G.M. diesels, B.H.P.: 900=14 kts.
Complement:	40
General	
Of wooden and non-magnetic construction. <i>Ponta Delgada</i> was transferred from the U.S. on 7 Apr. 1953. Four more were delivered in 1953-54 and the remaining three in 1955. A photograph of <i>Horta</i> appears in the 1957-58 to 1960-61 editions.	
Pennant Nos.: M 407 (<i>Angra do Heroismo</i>), M 406 (<i>Horta</i>), M 405 (<i>Ponta Delgada</i>), M 409 (<i>Santa Cruz</i>), M 408 (<i>Vila do Porto</i>), M 410 (<i>Velas</i>) (M 411 (<i>Lajes</i>), M 412 (<i>S. Pedro</i>).	

FISHERY PROTECTION LAUNCHES
(Lanchas de Fiscalização da Pesca)

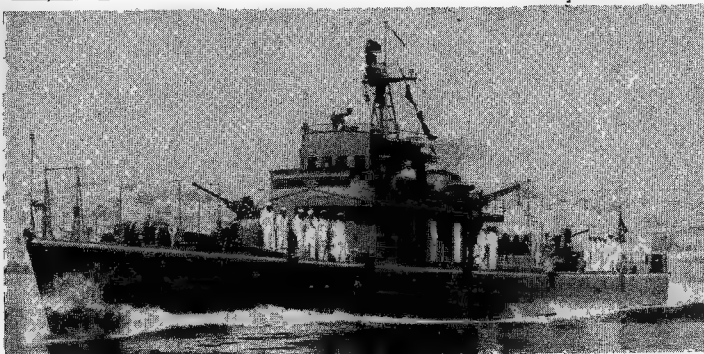


AZEVIA 1960, Portuguese Navy, Official
5 "Azevia" Class

AZEVIA	BICUDA	CORVINA	DOURADA	ESPADILHA
Displacement:	230 tons (270 tons full load)			
Dimensions:	134½ (pp.), 139½ (o.a.)×21½×7 feet			
Guns:	2—20 mm. AA.			
Machinery:	2 sets 7-cyl. 2-stroke Sulzer diesels in all except first pair, which have 2 sets 10-cyl. 4-stroke MAN diesels. 2 shafts. B.H.P.: 2,400=17 kts.			
Oil fuel:	25 tons			
Radius:	3,700 miles at 11 kts., 850 miles at 17 kts.			
Complement:	37			
General All launched in 1941-42. Pennant numbers: Azevia P 595, Bicuda P 596, Corvina P 597, Dourada P 598, Espadilha, P 599. A photograph of Bicuda appears in the 1953-54 to 1959-60 editions.				
Disposals The two rescue motor launches (lanchas de socorro) of the Ex-British type, Canopus and Espiga, were discarded in Sep. 1959 and Nov. 1959, respectively. Deneb and Formalhaut were discarded in 1959, Altair was scrapped in 1955.				

PATROL LAUNCHES (Lanchas de Fiscalização)

Patrol Launches—continued



DRAGÃO 1964, Portuguese Navy, Official

10 "Argos" Class

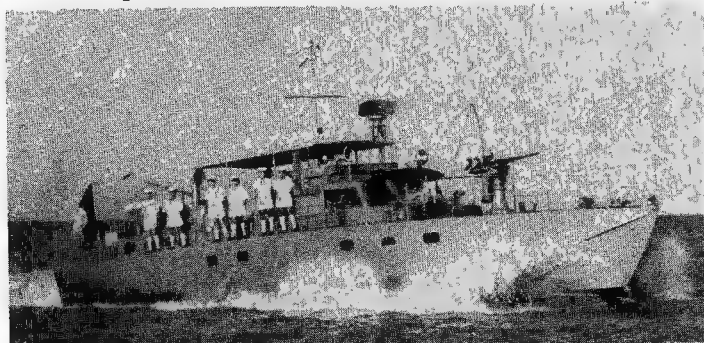
ARGOS P 372	DRAGÃO P 374	HIDRA P 376	ORION P 362
CASSIOPEIA P 373	ESCORPIÃO P 375	LIRA P 361	PEGASO P 379
CENTAURO P 1130			SAGITARIO P 1134
Displacement:	180 tons standard (210 tons full load)		
Dimensions:	131½ (pp.), 136½ (o.a.)×20½×7 feet		
Guns:	2—40 mm. AA.		
Machinery:	2 Maybach diesels. B.H.P.: 1,200=17 kts.		
Oil fuel:	16 tons		
Complement:	24		

General
Six built by Arsenal do Alfeite, Lisbon, and four by Estaleiros Navais de Viana do Castelo. All completed during 1963-65. (Argos commissioned 14 June 1963, Cassiopeia 13 Jan. 1964, Dragão 23 July 1963, Escorpião 3 Sep. 1963, Hidra 11 Apr. 1964, Pegasus 16 Oct. 1963, Orion 24 Oct. 1964.) Named after constellations.

6 "Jupiter" Class

JUPITER P 1132	MERCURIO P 1135	URANO P 1137
MARTE P 1134	SATURNO P 1136	VENUS P 1133
Displacement:	32 tons full load	
Dimensions:	69 (o.a.)×16½×4½ feet	
Guns:	1—20 mm. Oerlikon AA.	
Machinery:	2 Cummins diesels. B.H.P.: 1,270=20 kts.	
Complement:	8	

General
Built during 1964-65 to the above provisional figures. Named after planets.



BELLATRIX 1962, Portuguese Navy, Official

8 "Bellatrix" Class

ALTAIR P 377	DENEB P 365	FOMALHAUT P 367
BELLATRIX P 363	ESPIGA P 366	POLLUX P 368
CANOPUS P 364		RIGEL P 378
Displacement:	23 tons light (29 tons full load)	
Dimensions:	62½ (w.f.), 68 (o.a.)×15½×4 feet	
Guns:	1—20 mm. Oerlikon AA.	
Machinery:	2 Cummins diesels. B.H.P.: 470=15 kts.	
Complement:	7	

General
Built in Germany by Beyerische Schiffbaugesellschaft. Commissioned on 13 Jan. 1962, 29 May 1961, 29 May 1961, 15 June 1961, 4 Aug. 1961, 4 Aug. 1961, 23 Aug. 1961 and 13 Jan. 1962, respectively. Radius 650 miles.

ALGOL P 1138	
Displacement:	24 tons
Dimensions:	50½×13½×2½ feet
Guns:	2 M.G.
Machinery:	2 Cummins diesels. B.H.P.: 244

General
Built by Argibay, Lisbon in 1964.

CASTOR P 580	
Displacement:	22 tons
Dimensions:	53½ (w.f.), 58 (o.a.)×13½×3½ feet
Guns:	1—20 mm. Oerlikon AA.
Machinery:	2 Cummins diesels. B.H.P.: 500=15 kts.
Complement:	7

General
Built at the Estaleiros Navais do Mondego and commissioned on 3 Feb. 1964.

RIO MINHO P 370	
Displacement:	13.5 tons
Dimensions:	49½×10½×2½ feet
Guns:	2 M.G.
Machinery:	2 Alfa Romeo engines. B.H.P.: 130=9 kts.
Complement:	8

General
Built at Arsenal de Alfeite in 1955-57 for the River Minho on Spanish border.

TETE P 371	
Displacement:	100 tons
Dimensions:	76½×20×2½ feet
Guns:	2—47 mm., 2 M.G.
Machinery:	Stern-wheel propulsion. H.P.: 70=8 kts.
Boilers:	1 Yarrow

General
Built by Yarrow & Co. Ltd., Scotstoun, Glasgow. Launched in 1918. Re-launched at Chinde in 1920. Employed on Zambesi River. Formerly rated as a river gunboat (lancha canhoneira) but re-rated as a patrol boat (lancha de fiscalização) in 1960.



ANTARES 1963, Portuguese Navy, Official

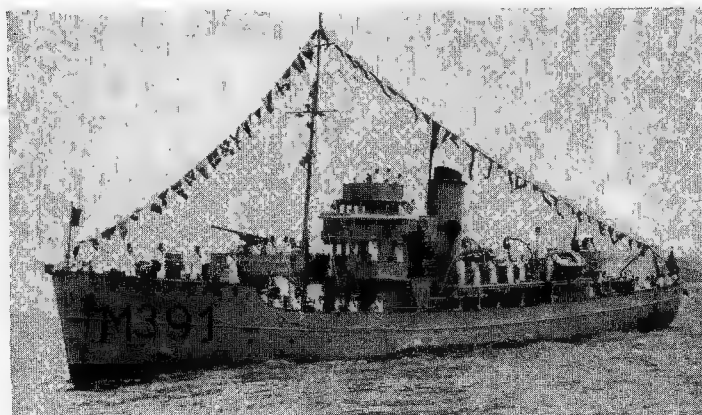
2 "Antares" Class

ANTARES P 360	REGULUS P 369
Displacement:	18 tons
Dimensions:	56 (o.a.), 51½ (w.f.)×15½×4 (aft) feet
Guns:	1—20 mm. Oerlikon quick firing AA.
Machinery:	2 Cummins diesels. 2 shafts. B.H.P.: 460=18½ kts.
Radius:	600 miles at full power
Complement:	7

General
Antares, Sirius and Vega were built in 1959 by James Taylor (Shipbuilders) Ltd., Shoreham, Sussex, England, and commissioned in that year. Hull of Deborahine resin-glass fibre moulding. Regulus was built in Portugal by Naval Shipyard, the hull being imported from England. She was commissioned on 27 Jan. 1962.

Sirius and Vega were lost in action in Dec. 1961 during the Indian invasion of Goa.

MINESWEEPERS (Caça-Minas)



FAIAL 1961, Portuguese Navy, Official

2 Ex-British "Isles" Class Minesweeping Trawlers

FAIAL (ex-Mangrove)	SANTA MARIA (ex-P.4, ex-Whalsay)
Displacement:	560 tons (800 tons full load)
Dimensions:	152×27½×15 feet
Guns:	1—3 inch, 2—20 mm. AA., D.C. carried
Machinery:	Triple expansion. I.H.P.: 850=12 kts.
Complement:	53 (normal)

General
Minesweeping trawlers purchased from Great Britain in 1945 and 1947, and named islands in the Azores. Originally classified as patrol vessels but later rated as minesweepers. Of four sister ships S. Miguel (ex-Bruery) was discarded in 1956, Terceira (ex-Haling) in 1957, Baldaque da Silva (ex-Ruskhalm) in 1961. Salvador Correia (ex-Saltarelo) was reclassified as a survey ship. A starboard broadside view of Santa Maria appears in the 1956-57 to 1960-61 editions.

No.	Name	Builders	Laid down	Launched	Completed
M 391	Faial	Ferguson Bros. Ltd.	18 Aug. 39	15 Feb. 40	23 Apr. 40
M 392	Santa Maria	Cook, Welton & Gemmell	19 Dec. 41	4 Apr. 42	4 Sep. 42

AUXILIARY GUNBOAT (Canhoneira)



DIO 1964, Portuguese Navy, Official

DIO A 5205	
Displacement:	397 tons standard (492 tons full load)
Dimensions:	147½×27½×7 feet
Guns:	2—3 inch, 40 cal. (Armstrong), 2—47 mm.
Machinery:	Triple expansion. 2 shafts. H.P.: 700=13 kts.
Boilers:	Yarrow
Coal:	85 tons
Radius:	3,200 miles at 9 kts.
Complement:	67

General
Built at Lisbon Dockyard. Launched in Oct. 1929. Employed as a training ship for naval reservists and ancillary forces, and classed as an auxiliary.

DIVING TENDER (Navio-apoio de mergulhadores)



MEDUSA 1960, Portuguese Navy, Official
MEDUSA (ex-U.S.S. Portunus, ARC 1, ex-U.S.S. LSM 275, ex-LCT (7) 1773)
Displacement: 743 tons standard (1,220 tons full load)
Dimensions: 196½ (pp.), 221½ (o.a.)×34½×10½ feet
Machinery: G.M. direct drive diesels, 2 shafts. B.H.P.:2,800=12 kts.
Radius: 5,240 miles at 10 kts.
Complement: 44

General
Former U.S. medium landing ship of the LSM type. Built by Federal Shipbuilding and Drydock Co., Newark, New Jersey. Laid down on 1 Aug. 1944, launched on 11 Sep. 1944, and completed on 6 Oct. 1944. Converted to a cable repairing or laying ship by the U.S. Navy in 1952. Transferred to the Portuguese Navy under the Military Assistance Programme in 1959. Delivered to Portugal on 16 Nov. and commissioned on 18 Nov. Pennant No.: A 5214.

LANDING CRAFT (Lanchas de desembarque)

4 LDG

ALFANGE	ARIETE	CIMITARRA	MONTANTE
Displacement:	500 tons		
Dimensions:	Length: 187 feet		
Machinery:	2 diesels. B.H.P.: 1,000		

General
Landing craft similar to the LCT (4) type built at the Estaleiros Navais do Mondego and commissioned during 1965.

6 LDM 500 Class

LDM 501	LDM 502	LDM 503	LDM 505
		LDM 504	LDM 506

8 LDM 400 Class

LDM 401	LDM 403	LDM 405	LDM 407
LDM 402	LDM 404	LDM 406	LDM 408

7 LDM 300 Class

LDM 301	LDM 303	LDM 305	LDM 307
LDM 302	LDM 304	LDM 306	

3 LDM 200 Class

LDM 201	LDM 202	LDM 203
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2 LDM 100 Class

LDM 101	LDM 102
Displacement:	50 tons full load
Dimensions:	Length: 50 feet
Machinery:	2 diesels. B.H.P.: 450

General
26 LCM type landing craft were commissioned in 1964, setting up five classes in LDM 100, 200, 300, 400 and 500 series as above. All built at the Estaleiros Navais do Mondego.

6 LPD 200 Class

LDP 201	LDP 202	LDP 203	LDP 205
		LDP 204	LDP 206

9 LPD 100 (ex-LD) Class

LDP 101	LDP 103	LDP 105	LDP 107
LDP 102	LDP 104	LDP 106	LDP 108
			LDP 109

Displacement: 12 tons light (18 tons full load)
Dimensions: Length: 46 (o.a.) feet
Machinery: 2 diesels. B.H.P.: 180

General
The nine LD class landing craft (of the LCA type) were redesignated LDP 101 to 109 to become the new LDP 100 class. Built at the Estaleiros Navais do Mondego and commissioned on 29 Apr. 1961 (LDP 101 and 102), 16 June 1961 (LDP 103), 22 Feb. 1963 (LDP 104 and 105) and 1964 (LDP 106, 107, 108, 109).
The six LDP 200 class were commissioned in 1965.

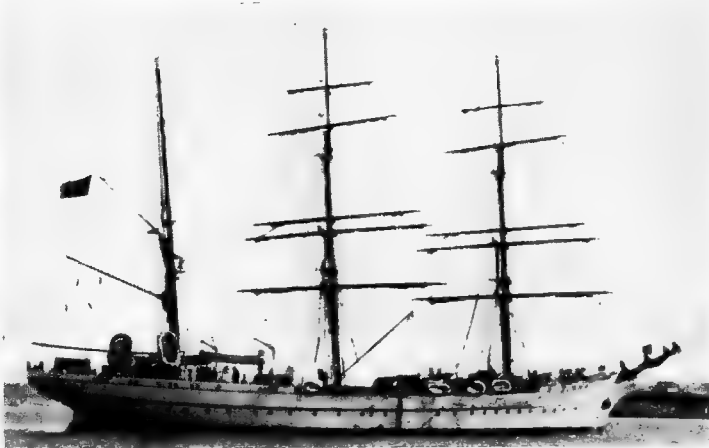
DEPOT SHIP (Navio Deposito) Former Training Ship

SANTO ANDRÉ (ex-Sagres, ex-Flores, ex-Max, ex-Rickmer Rickmers)

Displacement: 3,067 tons (3,176 tons full load)
Dimensions: 263½×40½×19 feet
Guns: 4—47 mm. saluting
Machinery: 2 Krupp diesels, 2 shafts. B.H.P.: 700=8 kts.
Complement: 209 (normal)+196 personnel under training

General
Former German sailing vessel. Built at Bremerhaven. Launched in 1896. Captured during the First World War. Re-rigged as a barque and adapted as a naval training ship during 1924-27. Auxiliary motors were fitted in 1931. Reclassified as a depot ship and renamed Santo André by a governmental decree of 31 Jan. 1962 with the new pennant No. A 5207. She was replaced by the training ship Guanabara, purchased from the Brazilian Navy and included in the Portuguese Navy on 8 Feb. 1962, which took the name and pennant number (A 520) of the former Sagres.

TRAINING SHIP (Navio-Escola)



SAGRES 1964, Eugenio A. Cavalheiro

SAGRES (ex-Guanabara, ex-Albert Leo Schlageter)

Displacement: 1,415 tons (1,869 tons full load)
Dimensions: 229½ (pp.), 249 (o.a.)×39½×17 feet
Sail area: 20,793 sq. ft.
Height of mast: 142 feet
Machinery: 2 MAN auxiliary diesels. B.H.P.: 750=10 kts.
Oil fuel: 52 tons

General
Former German sail training ship. Built by Blohm & Voss, Hamburg. Launched in June 1937 and completed on 1 Feb. 1938. Sister of U.S. Coast Guard training ship Eagle (ex-German Horst Wessel). Taken by the U.S.A. as a reparation after the Second World War in 1945 and sold to Brazil in 1948. Purchased from the Brazilian Navy and commissioned in the Portuguese Navy on 8 Feb. 1962 at Rio de Janeiro and renamed Sagres. Pennant No. A 520.

FLEET OILERS (Navios Petroleiros)



S. GABRIEL 1964, Eugenio A. Cavalheiro

S. GABRIEL
Displacement: 14,200 tons
Measurement: 9,500 tons gross, 9,000 tons deadweight
Dimensions: 452½ (pp.), 479 (o.a.)×59½×26½ (loaded) feet
Machinery: 1 Pametrada geared turbine. S.H.P.: 9,500=17 kts.
Radius: 6,000 miles at 15 kts.

General
Built at Estaleiros Navais de Viana do Castelo. Completed in 1962. Commissioned on 27 Mar. 1963, Pennant No. A 5206.



SAM BRAS 1960, Portuguese Navy, Official

SAM BRAS
Measurement: 7,000 tons gross, 3,500 tons deadweight
Dimensions: 336½ (pp.), 356½ (o.a.)×50½×18 (max.) feet
Machinery: B. & W. 2-stroke diesel. B.H.P.: 2,820=12 kts.
Oil fuel: 568 tons, officially revised figures
Radius: 6,000 miles at 12 kts.
Complement: 70 (normal)

General
Built at the Arsenal do Alfeite. Laid down on 22 Feb. 1941. Launched on 17 Mar. 1942. Pennant No.: A 523.
(A small oiler, ex-U.S.S. YO 194, was transferred to Portugal by the U.S.A. under MAP), and is now redesignated BC 3.

LIGHTHOUSE TENDER (Navio Balizador)

ALMIRANTE SCHULTZ

Displacement: 538 tons (officially revised figure)
Dimensions: 131½×31×10½ feet
Machinery: 2 sets Rateau diesels B.H.P.: 500=9 kts.
Oil fuel: 21 tons
Complement: 50 (normal)

General
Built at Penhoët dockyard. Launched in 1929. A photograph appears in the 1953-54 to 1957-58 editions. Pennant number A 521.

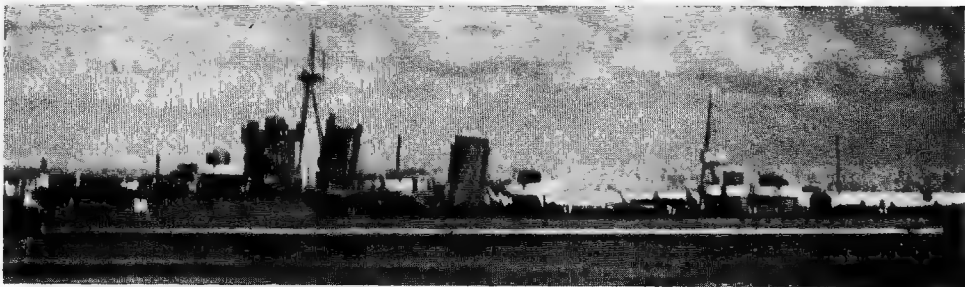
RUMANIA

DESTROYERS (Distrugătoare)

2 Thornycroft Type

D 9 (ex- D 21, ex-Letuchi, ex-Regina Maria)
D 10 (ex-D 22, ex-Likhol, ex-Regele Ferdinand)

Displacement: 1,400 tons standard (1,850 tons full load)
Dimensions: 334½ × 31½ × 11½ feet
Guns: 5—4.7 inch, 50 cal., 1—3 inch AA., 2—40 mm. AA., 3 M.G.
Tubes: 6—21 inch (2 triple)
A/S weapons: 4 D.C.T.
Mines: 50
Machinery: Parsons geared turbines by Stab. Tecnico Triestino. 2 shafts. S.H.P.: 42,000=38 kts.
Boilers: 4 water tube
Oil fuel: 400 tons
Radius: 3,000 miles at 10 kts.
Complement: 212



D 9

1960, courtesy Mr. P. H. Silverstone

General
Built by Pattison, Naples, to the design of John I Thornycroft & Co. Ltd., Woolston, Southampton. Launched on 2 Mar. 1929 and 2 Dec. 1928, respectively. Returned to Rumania in 1953 by U.S.S.R. by whom they were captured from the Rumanian Navy in 1944. It was reported that they were re-armed. Now over age and obsolescent.

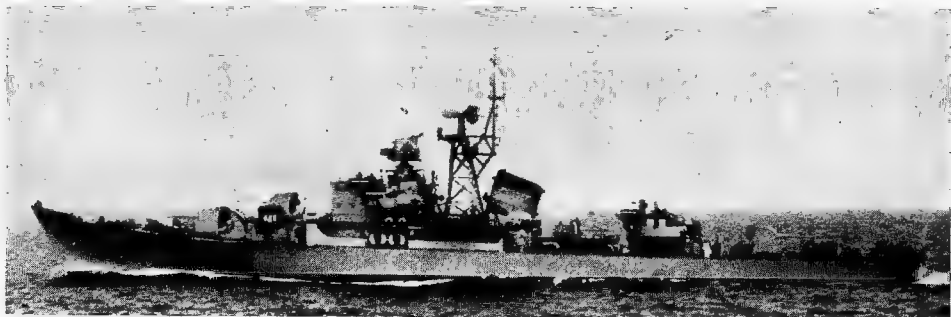
Recent Disposals
It is reported that the well over-age and obsolete destroyers *Marasti* (ex-Italian *Sparvieto*) and *Marasesti* (ex-Italian *Nibbio*) have been discarded. One is said to have been scrapped at Constanta and the other is no more than a hulk.

Cruiser
The old light cruiser *Kertch* (ex-Stalingrad, ex-Z 15, ex-Emanuele Filiberto Duca D'Aosta) was reported to have been lent or leased by U.S.S.R. to the Rumanian Navy. But in 1961 it was reported that she was being scrapped. See U.S.S.R. section, 1959-60 edition.

FRIGATES

6 Ex-U.S.S.R. "Riga" Class

Displacement: 950 tons standard (1,350 tons full load)
Dimensions: 278½ × 29½ × 10 feet
Guns: 3—3.9 inch AA., 8—37 mm. AA.
Tubes: 3—21 inch
A/S weapons: 4 D.C.T.
Mines: 50
Machinery: Geared turbines. 2 shafts. S.H.P.: 24,000=28 kts.
Boiler: 2
Oil fuel: 300 tons
Complement: 190



RIGA Class

1958, Official

General
Former Soviet escort vessels of the "Riga" class built in 1955 and taken over by Rumania in 1957-58.

SUBMARINES

8 Ex-U.S.S.R. Type

Displacement: 650 tons surface, 740 tons submerged
Dimensions: 180 × 21 × 14½ feet
Guns: 2—25 mm.
Tubes: 4—21 inch
Machinery: Diesels. B.H.P.: 3,000=18 kts. (surface). Electric motors. H.P.: 2,500=16 kts. (submerged)



MARSUINUL

Added 1953

General
Former Soviet submarines variously reported to be of the improved "Shch" or "Q" class.

MARSUINUL (S 2)

Builders: Galatz Shipbuilding Yard
Laid down: 1938
Launched: 4 May 1941
Completed: 1942
Displacement: 620 tons (surface)
Dimensions: 190½ × 18½ × 11½ feet
Guns: 1—4.1 inch, 1—37 mm. AA.
Tubes: 6—21 inch (4 bow, 2 stern)
Machinery: Diesels. 2 shafts. B.H.P.: 1,840=16 kts. (surface). Electric motors=9 kts. (submerged)
Oil fuel: 60 tons
Radius: 4,000 miles at 8 kts.
Complement: 40

REQUINUL (S 1)

Builders: Galatz Shipbuilding Yard
Laid down: 1938
Launched: 22 May 1941
Completed: 1942
Displacement: 650 tons (surface)
Dimensions: 223 × 19½ × 11½ feet
Guns: 1—20 mm. AA.
Tubes: 4—21 inch (bow)
Mines: 40
Machinery: Diesels. 2 shafts. B.H.P.: 1,840=17 kts. (surface). Electric motors=9 kts. (submerged)
Oil fuel: 60 tons
Radius: 4,000 miles at 8 kts.
Complement: 40

4 Ex-U.S.S.R. "MV" Type

Displacement: 350 tons surface, 420 tons submerged
Dimensions: 167½ × 16 × 12 feet
Guns: 1—45 mm. AA.
Tubes: 2—21 inch
Machinery: Diesels. B.H.P. 800=13 kts. (surface). Electric motors. H.P.: 400, 8 kts. (submerged)
Oil fuel: 21 tons
Radius: 4,000 miles at 10 kts. (surface); 100 miles at 5 kts. (submerged)
Complement: 24

General
Both *Marsuinul* and *Requinul* were Rumanian built to German plans. Now over age and obsolescent, and may be discarded.

Disposal
The submarine *Delfinul*, which received considerable damage during the war, was discarded in 1957.

General
Former Soviet coastal submarines built in 1940 and taken over by Rumania in 1957.

MINELAYER (Puitoare de Mine)

AMIRAL MURGESCU

Displacement: 812 tons standard
Dimensions: 252½ (o.a.) × 29½ × 8½ (mean) feet
Guns: 2—4 inch d.p., 2—37 mm. AA.
A/S weapons: 2 D.C.T.
Mines: 135
Machinery: 2 Krupp diesels, 2 shafts. B.H.P.: 2,100=16 kts.
Radius: 2,100 miles at 10 kts.
Complement: 78 (2 officers, 54 man crew, plus 2 officers for instruction and 20 students)

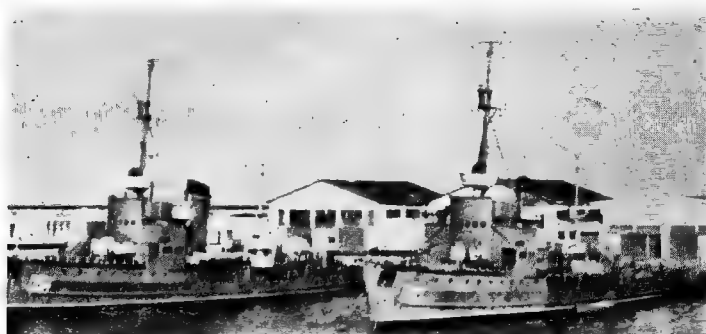
Construction
Built by Galatz Shipbuilding Yard. Laid down on 1 Aug. 1938. Launched on 14 June 1939. Completed in 1941.
Training
Reported to have accommodation for about 20 midshipmen or naval cadets under training.



AMIRAL MURGESCU

Erich Gröner

MINESWEEPERS



D 814 and D 815

1964, courtesy Mr. P. H. Silverstone



D 816

1960, courtesy Mr. P. H. Silverstone

14 Ex-German "M 40" Type

DESCATUSARIA DESROBIREA DEMOCRATIA DREPTATEA

Displacement: 543 tons standard (775 tons full load)
 Dimensions: 188 (pp.), 203½ (o.a.) 28×7½ (max.) feet
 Guns: 6—37 mm. AA. (twin)
 A/S weapons: 2 D.C.T.
 Machinery: Triple expansion. 2 shafts. I.H.P.: 2,400=17 kts.
 Boilers: 2 three-drum water tube
 Fuels: 152 tons coal
 Radius: 4,000 miles at 10 kts.
 Complement: 80

General

Former German "M 40" type coal-burning minesweepers. Built in 1943. Taken over by U.S.S.R. at the end of the Second World War. Transferred to Rumania in 1956-1957. The number of these vessels reported to have been acquired varies from four to fourteen, but photographs of only D 814, D 815 and D 816 (see above) have reached this annual.

TRAINING SHIPS (Navă Școală)

German Built Sail Type

MIRCEA

Displacement: 1,604 tons
 Dimensions: 239½ (o.a.) 267½ (with bowsprit)×39½×16½ feet
 Sail area: 18,830 sq. ft.
 Machinery: Auxiliary M.A.N. 6-cylinder Diesel. B.H.P.: 500=9.5 kts.
 Complement: 83+140 midshipmen for training

General

Built by Blohm & Voss, Hamburg. Laid down on 30 Apr. 1938. Launched on 22 Sep. 1938. Completed on 29 Mar. 1939 (delivered). Sail training ship.

Former Submarine Depot Ship

CONSTANTA

Displacement: 1,329 tons standard (2,300 tons full load)
 Dimensions: 255½×37×13½ feet
 Guns: 2—4 inch, 2—40 mm.
 Machinery: 2 sets Diesels. 2 shafts. B.H.P.: 1,000=13 kts.
 Radius: 12,000 miles

General

Built by Quarnaro Yard, Fiume. Laid down on 15 Aug. 1927. Launched on 8 Nov. 1928. Completed in 1931. Former submarine Depot Ship. Fitted with engineering and torpedo shops; torpedo loading room; salvage, diving and submarine signalling apparatus. Now used as a training ship. A photograph appears in the 1960-61 and earlier editions.

Former Royal Yacht

LIBERATEA (ex-Luceafarul, ex-Nahlin)

Displacement: 2,050 tons
 Dimensions: 250 (w.l.), 296 (o.a.)×36×—feet
 Machinery: 4 Brown-Curtis geared turbines. 2 shafts. S.H.P.: 4,000=17.5 kts.
 Boilers: 2 Yarow. Oil fuel

General

Former Royal Yacht. Designed by G. L. Watson & Co. Built by John Brown & Co. Ltd., Clydebank, Scotland. Launched in 1930. Purchased in 1937. Used as a training ship.

Former Sail Yacht

RASARITUL (ex-Talfun)

Measurement: 34 tons (Thames measurement)
 Dimensions: 54×12½×3 feet
 Machinery: 2 petrol motors. 2 shafts

General

Built by J. Samuel White & Co. Ltd., Cowes, Isle of Wight, England. Launched in 1938. Of wooden construction. Yacht used as sail training ship.

PATROL VESSELS

3 Ex-U.S.S.R. "Kronstadt" Class

Displacement: 300 tons standard (350 tons full load)
 Dimensions: 167½×19½×9 feet
 Guns: 1—3.4 inch dual purpose forward, 2—37 mm. AA. single aft, 6—12.7 mm. in twin mounts
 A/S weapons: 2 ahead throwing launchers, 2 side projectors, 2 depth charge tracks
 Machinery: Diesels. 2 shafts. Speed=27 kts.

Transfer

Former Soviet submarine chasers transferred to Rumania from the U.S.S.R.

Disposals

The two old patrol vessels rated as gunboats (*canoniere*), namely *Locotenent-Comandar Stiki Eugen* (ex-French *Friponne*) and *Sublocotenent Ghiculescu* (ex-French *Mignonne*), are now over age and obsolete (see photograph and full particulars in the 1961-62 and earlier editions).

The two very old patrol boats, former Austrian torpedo boats (*torpiloare*), namely *Sborul* (ex-T 81) and *Smeul* (ex-T 83), are considered to be of no further military value and are being discarded and, it is reported, are to be scrapped (see full particulars in the 1961-62 and earlier editions and photograph in the 1960-61 and earlier editions).

The old river monitors *Ardeal*, *Basarabia*, *Bratianu*, *Bucovina* and *Lahoori*, and the old river gunboats *Cosca*, *Cusan* and *Horia*, are reported to still exist.

MOTOR TORPEDO BOATS

8 Ex-U.S.S.R. "P 4" Class

Displacement: 50 tons
 Dimensions: 85½×20×6 feet
 Guns: 4—25 mm. AA.
 Tubes: 2—21 inch
 Machinery: Speed=42 kts.

Transfer

Former Soviet motor torpedo boats transferred to Rumania from the U.S.S.R.

INSHORE MINESWEEPERS

22 Ex-U.S.S.R. "T 301" Class

Displacement: 130 tons
 Dimensions: 100×16×4½ feet
 Guns: 2—45 mm. AA., 4—12.7 mm. MG.
 Machinery: Diesel. B.N.P.: 480=10 kts.
 Complement: 30

Transfer

Former Soviet coastal minesweepers transferred to Rumania by the U.S.S.R. in 1956-60.

There are some launches on the Danube and some patrol boats in the Black Sea. Reports mention two surveying vessels, three landing ships (one LST and two LSM), ten landing craft (2 LCI and 8 LCT), ten transports and three oilers.

SAUDI ARABIA

RIYADH

Steel-hulled patrol boat of United States Coast Guard design transferred to Saudi Arabia in 1960. 102 tons, 95 feet, 1—40 mm. AA., 21 kts.
 It is reported that a U.S. Navy "Auk" class minesweeper may be purchased for the Saudi Arabian Navy.

SENEGAL

PATROL BOATS

Ex-French VC Type

CASAMANCE (ex-VC 5, P 755)

Displacement: 75 tons standard (82 tons full load)
 Dimensions: 104½×15½×5½ feet
 Guns: 2—20 mm. AA.
 Machinery: 2 Mercedes-Benz diesels. 2 shafts. B.H.P.: 2,700=28 kts.
 Radius: 1,500 miles at 15 kts.
 Complement: 15

General

Former French patrol craft (*vedette de Surveillance*). Built by the Constructions Mécaniques de Normandie, Cherbourg. Completed in 1958. Transferred from France to Senegal in 1963.

Ex-U.S. SC Type

SÉNÉGAL (ex-P 700, ex-CH 62, ex-U.S. SC 1344)

Displacement: 110 tons standard (138 tons full load)
 Dimensions: 107½ (w.l.), 110½ (o.a.)×17×6½ feet
 Guns: 1—40 mm. AA., 3—20 mm. AA.
 Machinery: 2 General Motors diesels. 2 shafts. B.H.P.: 1,000=15 kts.
 Oil fuel: 15 tons
 Radius: 2,000 miles at 10 kts., 1,150 miles at 15 kts.
 Complement: 25

General

Former American wooden submarine chaser. Transferred from U.S.A. to France on 19 Nov. 1943, and from France to Senegal at Dakar on 12 July 1961. First ship of the new Senegalese naval force.

SIERRA LEONE

The Sierra Leone Naval Volunteer Force is reported to have several small craft in use. (Sierra Leone became independent on 27 Apr. 1961).

SOMALIA

Somalia, which became an independent republic on 1 July, 1960, is reported to have a number of patrol boats.

SOUTH AFRICA

Administration

Naval Chief of Staff:
Rear Admiral H. H. Biermann, S.S.A.,
O.B.E., S.A.N.

Naval, Military and Air Attaché in London:
Brigadier J. P. Verster, S.M., S.A.A.F.

Assistant Naval Attaché in London:
Commander R. C. Cousens, S.A.N.

Personnel

1965: 270 officers and 2,700 ratings

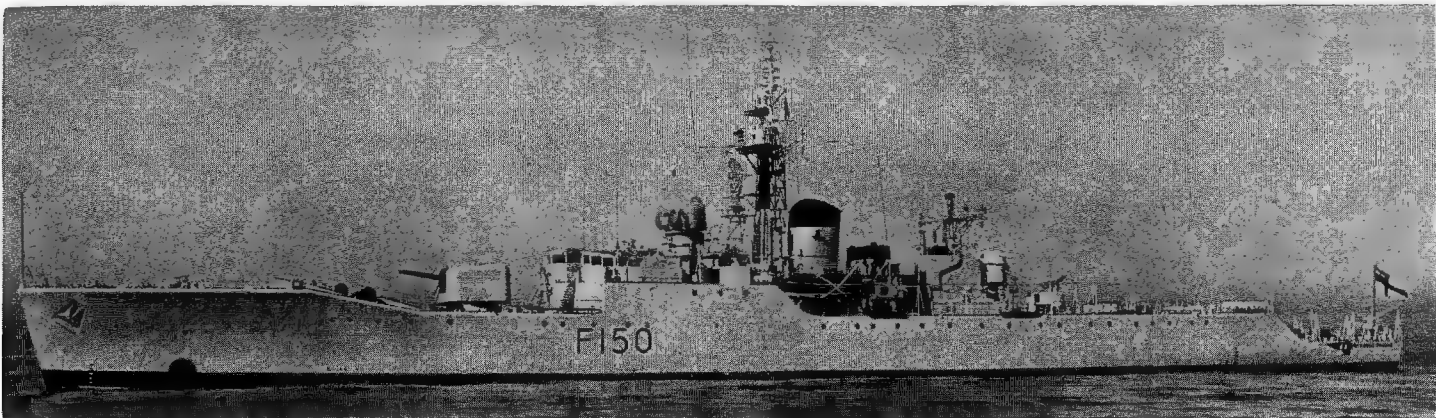
Naval Base

H.M. Dockyard at Simonstown was transferred to the Union of South Africa on 2 Apr. 1957.

Mercantile Marine

Lloyd's Register of Shipping:
165 vessels of 303,329 tons gross

ANTI-SUBMARINE FRIGATES



PRESIDENT KRUGER

1963, South African Navy, Official

3 "President" Class. Type 12

Displacement: 2,144 tons standard (2,557 tons full load)
Dimensions: 360 (pp.), 370 (o.a.)×41×13 (mean), 17 (max). feet
Guns: 2—4.5 inch (twin); 2—40 mm. Bofors AA, (twin); 4—3 pdr. saluting
A/S weapons: 2 Limbo three-barrelled depth bomb mortars
Machinery: 2 sets double reduction geared steam turbines, 2 shafts. S.H.P.: 30,430—over 30 kts.
Boilers: 2 Babcock & Wilcox
Complement: 190

General
Anti-submarine frigates of the "Whitby" type built in the United Kingdom during the period 1958-1964 as a part of the expansion programme announced by the Minister of Defence. President Kruger arrived in South Africa on 27 Mar. 1963.

Gunnery
The two 40 mm. AA. guns are on the main deck, a deck lower than in the "Whitby" class in the Royal Navy.

Engineering
The propelling machinery includes geared turbines of advanced design and high power which start on a cruising turbine and automatically switch over to the main turbine at a predetermined speed.

Electrical
The electrical system is alternating current, 440 volts, three phase, 60 cycles per second.

Name	No.	Builders	Launched	Completed
PRESIDENT KRUGER	F 150	Yarrow & Co. Ltd., Scotstoun, Glasgow	20 Oct. 1960	1 Oct. 1962
PRESIDENT PRETORIUS	F 145	Yarrow & Co. Ltd., Scotstoun, Glasgow	28 Sep. 1962	4 Mar. 1964
PRESIDENT STEYN	F 147	Alex Stephen & Sons Ltd., Govan, Glasgow	23 Nov. 1961	25 Apr. 1963



PRESIDENT PRETORIUS

1964, Wright & Logan

Design
Primarily designed for the location of the most modern type of submarines, these first-rate frigates are fitted with the latest underwater detection equipment and anti-submarine weapons of post-war development. Good seakeeping qualities enable them to maintain their high speed in rough seas. They are all welded and the structural arrangements were specially designed to save as much weight as possible. Air conditioned for tropical climates.

Nomenclature
Kruger was the last President of the old Transvaal Republic. Steyn was the last president of the old Orange Free State. Pretorius was the first president of the Transvaal Republic; he built and named the capital Pretoria after his father, one of the "Great Trek" leaders.

Photographs
A photograph of President Steyn appears in the 1963-64 edition.

DESTROYERS

2 Former British "W" Class

JAN VAN RIEBEECK (ex-H.M.S. Wessex, ex-Zenith)
SIMON VAN DER STEL (ex-H.M.S. Whelp)

Names	Jan van Riebeeck	Simon van der Stel
Pennant No.:	D 278	D 237
Builders:	Fairfield Shipbuilding & Engineering Co. Ltd., Govan, Glasgow	R. & W. Hawthorn & Leslie & Co. Ltd., Hebburn-on-Tyne
Laid down:	20 Oct. 1942	1 May 1942
Launched:	2 Sep. 1943	3 June 1943
Completed:	11 May 1944	25 Apr. 1944

Displacement: 1,710 tons standard (2,505 tons full load)
Dimensions: 339½ (pp.), 362½ (o.a.)×35½×10 (mean), 16 (max.) feet
Guns: 4—4 inch; 4—40 mm. Bofors AA.; 4—3 pdr. saluting
Tubes: 4—21 inch (quadrupled)
A/S weapons: 4 D.C.T.
Aircraft: 2 Westland Wasp helicopters
Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 40,000—36.75 kts. (designed) 31.25 kts. sea speed
Boilers: 2 Admiralty 3-drum type
Complement: 186



SIMON VAN DER STEL (after modernisation)

1964, South African Navy, Official

General
Purchased from Great Britain, Jan van Riebeeck was transferred to South Africa on 29 Mar. 1950, and Simon van der Stel early in 1952.

Modernisation
Simon van der Stel was modernised in 1963 and Jan van Riebeeck in 1964.

Gunnery
Main armament formerly comprised 4—4.7 inch guns.

Photographs
A photograph of Jan van Riebeeck (before modernisation) appears in the 1954-55 to 1963-64 editions.

FAST ANTI-SUBMARINE FRIGATE (ex-Destroyer)

I Former British Type 15

VRYSTAAT (ex-H.M.S. Wrangler)

Pennant No.:	F 157
Builders:	Vickers-Armstrongs, Ltd., Barrow-in-Furness
Laid down:	23 Sep. 1942
Launched:	30 Dec. 1943
Completed:	14 July 1944
Displacement:	2,100 tons standard (2,700 tons full load)
Dimensions:	339½ (pp.), 362½ (o.a.)×35½× 16 (max.) feet
Guns:	2—4 inch, 2—40 mm. Bofors AA.; 4—3 pdr. saluting
A/S weapons:	2 Squid triple-barrelled depth charge mortars
Machinery:	Parsons geared turbines, 2 shafts, S.H.P.: 40,000=36.75 kts. (de- signed) 31.25 kts. sea speed
Boilers:	2 Admiralty 3-drum type
Complement:	175

General
Fully converted into a Type 15 fast anti-submarine frigate from a fleet destroyer of the "W" class in 1951-52 by Harland & Wolff Ltd., Belfast. Refitted by the Mount Stuart Dry Dock, Ltd., Cardiff, and taken



VRYSTAAT

1964, South African Navy, Official

over from the Royal Navy on 29 Nov. 1956, as a unit of the South African Navy and renamed Vrystaat. Sailed for South Africa at the end of Jan. 1957.

Class
Originally a sister ship of Jan van Riebeeck and Simon van der Stel (see previous page).

FRIGATES

2 Former British "Loch" Class

GOOD HOPE (ex-H.M.S. Loch Bole)

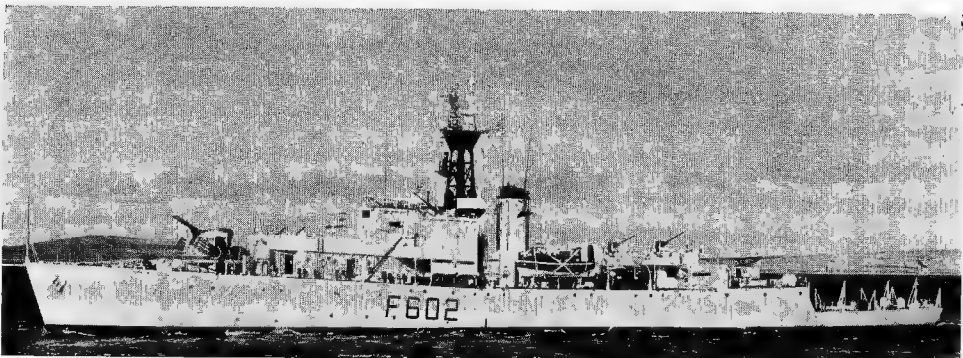
TRANVAAL (ex-H.M.S. Loch Ard)

Name:	Good Hope	Transvaal
Pennant No.:	F 432	F 602
Builders:	Blyth Dry Docks & S.B. Co. Ltd.	Harland & Wolff, Ltd., Belfast (com- pleted by Lobnitz & Co. Ltd., Renfrew)
Laid down:	8 Nov. 1943	20 Jan. 1944
Launched:	5 July 1944	2 Aug. 1944
Completed:	1 Dec. 1944	21 May 1945
Displacement:	1,435 tons standard (2,260 tons full load)	
Dimensions:	286 (pp.), 307 (o.a.)×38½×15 (max.) feet	
Guns:	Transvaal, 2—4 inch 6—40 mm. Bofors AA. Good Hope, 2—4 inch, 2—40 mm. Bofors AA., 4—3 pdr saluting	
A/S weapons:	2 Squid triple-barrelled depth charge mortars	
Machinery:	Triple expansion, 2 shafts. I.H.P.: 5,500=19.5 kts. (max.) designed Sea speed: 18 kts.	
Boilers:	2 Admiralty 3-drum type	
Oil fuel:	724 tons	
Radius:	9,500 miles at 12 kts.	
Complement:	140	

General
These two "Loch" class anti-submarine frigates, and a sister ship, Natal, were presented to South Africa by Great Britain in 1944-45.

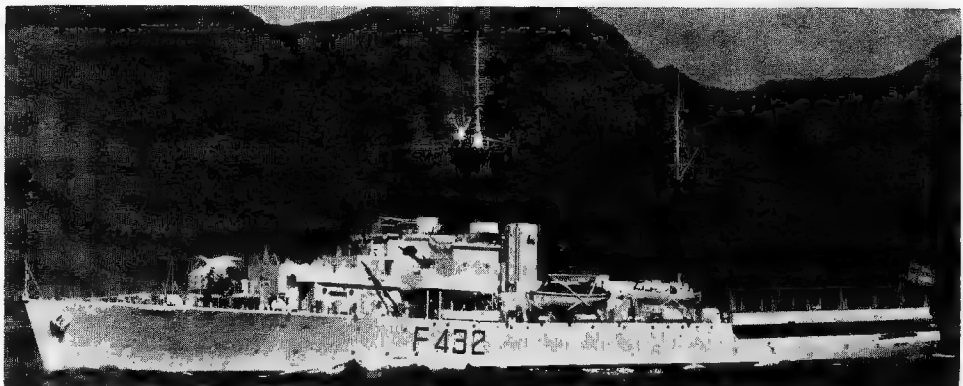
Modification
When Transvaal was modernised she had her forecastle deck extended aft to provide extra accommodation (see photograph).

Conversions
Good Hope was converted to a despatch vessel in 1955. She is primarily employed as a Training Ship. She has deckhouse superstructure for extra cabins, and reception platform above built on aft. Refitted in 1961. Sister ship Natal was converted into a survey ship in 1957, see next page.



TRANVAAL (showing forecastle deck extended aft)

1963, South African Navy, Official



GOOD HOPE (after re-fit)

1962, South African Navy, Official

ESCORT MINESWEEPERS

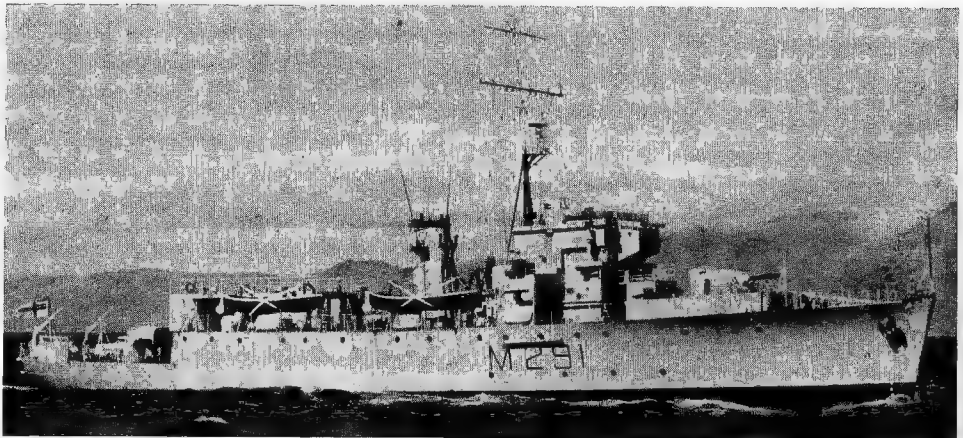
2 Former British "Algerine" Class

BLOEMFONTEIN (ex-H.M.S. Rosamund)

PIETERMARITZBURG (ex-H.M.S. Pelorus)

Name:	Bloemfontein	Pietermaritzburg
Pennant No.:	M 439	M 291
Builders:	Port Arthur Shipyards	Lobnitz & Co. Ltd., Renfrew
Laid down:	1943	8 Oct. 1942
Launched:	20 Dec. 1944	18 June 1943
Completed:	1945	7 Oct. 1943
Displacement:	1,040 tons standard (1,330 tons full load)	
Dimensions:	225 (o.a.)×35½×11½ (max.) feet	
Guns:	Pietermaritzburg: 2—4 inch; 2 —40 mm. Bofors AA. Bloemfontein: temporarily dis- mounted	
A/S weapons:	4 D.C.T.	
Machinery:	Triple expansion, 2 shafts, I.H.P.: 2,160=16 kts.	
Boilers:	2, of 3-drum type	
Oil fuel:	270 tons	
Radius:	5,000 miles at 10 kts.	
Complement:	85	

General
Former "Algerine" class ocean minesweepers in the Royal Navy, also used as escort vessels. Purchased by



PIETERMARITZBURG (showing accommodation for midshipmen aft) 1963, South African Navy, Official

South Africa from Great Britain in 1947. Pietermaritzburg re-commissioned as a midshipmen's training ship on 30 Aug. 1962.

Photograph.
A photograph of Bloemfontein appears in the 1952-53 to 1957-58 editions.

SURVEY SHIP

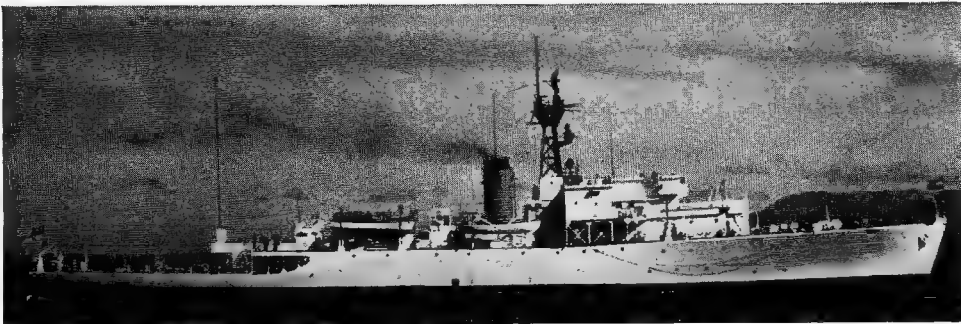
British "Loch" Class. Former Frigate

NATAL (ex-H.M.S. Loch Cree)

Pennant No.: A 301
Builders: Swan, Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne
Laid down: 18 Oct. 1943
Launched: 19 June 1944
Completed: 8 Mar. 1945

Displacement: 1,435 tons standard (2,260 tons full load)
Dimensions: 286 (pp.), 307 (o.a.)×38½×12 (mean) 14½ (max.) feet
Machinery: Triple expansion, 2 shafts, I.H.P.: 5,500=19.5 kts. (max.) designed. Sea speed: 18 kts.
Boilers: 2 Admiralty 3-drum type
Oil fuel: 724 tons
Radius: 9,500 miles at 12 kts.
Complement: 124

General
Originally a "Loch" class frigate presented to South Africa by Great Britain in 1945. Converted into a sur-



vey ship in 1957, when guns and anti-submarine weapons were removed. Sister ship of Good Hope and Transvaal, see previous page.

Disposal
The survey ship Protea (ex-Flower" class frigate H.M.S. Rockrose) was sold to commercial interests in 1962.

COASTAL MINESWEEPERS



JOHANNESBURG 1964, South African Navy, Official



KIMBERLEY Added 1962, South African Navy, Official
10 British "Ton" Class (Type I)

DURBAN M 1499 MOSSELBAAI (ex-Oakington) M 1213
EAST LONDON (ex-Chilton) M 1215 PORT ELIZABETH (ex-Dumbleton) M 1212
JOHANNESBURG (ex-Castleton) M 1207 PRETORIA (ex-H.M.S. Dunkerton) M 1144
KAAPSTAD (ex-H.M.S. Hazleton) M 1142 WALVISBAAI (ex-Packington) M 1214
KIMBERLEY (ex-Stratton) M 1210 WINDHOEK M 1498

Displacement: 360 tons standard (425 tons full load)
Dimensions: 140 (pp.), 152 (o.a.)×28½×8½ feet
Guns: 1—40 mm. Bofors AA., 2—20 mm. AA.
Machinery: Diesels (Mirlees in Kaapstad and Pretoria, B.H.P.: 2,500, Deltic in remainder, B.H.P.: 3,000)=15 kts.
Complement: 27

General
Basically similar to the "Ton" class coastal minesweepers in the Royal Navy. Kaapstad and Pretoria, which have lattice masts and open bridge, were purchased in 1955. A modified ship, Windhoek, with frigate bridge and tripod mast, was launched at John I. Thornycroft & Co. Ltd., Woolston, Southampton, on 27 June 1957. Durban, which also has a covered bridge and tripod mast, was launched at Camper & Nicholson's Gosport, on 12 June 1957. East London and Port Elizabeth were transferred from the Royal Navy to the South African Navy at Hythe, Southampton Water, on 27 Oct. 1958, and sailed for South Africa in Nov. 1958. Johannesburg, Kimberley and Mosselbaai were delivered in 1959. Walvisbaai was launched by Harland & Wolff, Belfast, on 10 Dec. 1958 and delivered in 1959.

A photograph of Pretoria appears in the 1956-57 to 1962-63 editions, and of Windhoek in the 1958-59 to 1963-64 editions.

SEAWARD DEFENCE MOTOR LAUNCHES

5 Ex-HDML Type

SDML 1197 SDML 1202 SDML 1204
SDML 1200 SDML 1203
Displacement: 46 tons standard (54 tons full load)
Dimensions: 72 (o.a.)×158×5½ feet
Machinery: 2 Gardner 8-cylinder diesels. B.H.P.: 130=11 kts.
Complement: 11 to 14

General
Former HDMLs (Harbour Defence Motor Launches) later designated Seaward Defence Motor Launches. All built in South Africa. Their guns have been removed. Used as tenders to South African Naval Bases. SDML 1202 has been converted to a gunnery practice target. SDML 1330 and SDML 1331 were stricken off in 1953 and SDML 1199 and SDML 1201 in 1955. SDML 1198 was scrapped in 1956 and SDML 1332 on 11 Feb. 1958.

SEAWARD DEFENCE BOATS



RIJGER 1964, South African Navy, Official

5 British "Ford" Class

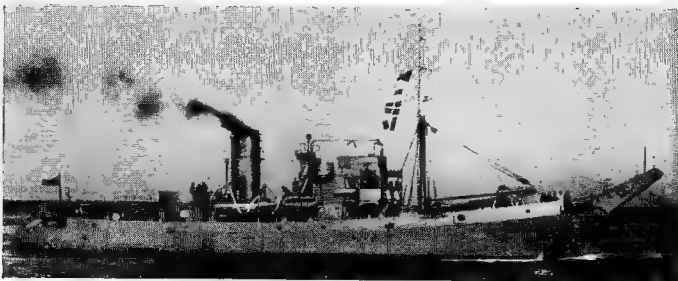
GELDERLAND (ex-H.M.S. Brayford) NAUTILUS (ex-H.M.S. Glassford) P 3120
P 3105 OOSTERLAND P 3127
HAERLEM P 3126 RIJGER P 3125

Displacement: 120 tons standard (160 tons full load)
Dimensions: 110 (pp.), 117½ (o.a.)×20×4½ feet
Guns: 1—40 mm. AA.
A/S weapons: 2 D.C.T. in Haerlem, Oosterland and Rijger. Depth charge release gear. Flares
Machinery: 2 Davey Paxman diesels. Foden engine on centre shaft. B.H.P.: 1,100=18 kts. (max.) Sea speed: 15 kts.
Complement: 24

General
Similar to "Ford" class, 3101 series, in the Royal Navy. Gelderland was purchased from Great Britain in 1954, being handed over to the South African Navy at Portsmouth on 30 Aug. 1954. They were a new design of naval vessel, their purpose being to detect, locate and destroy submarines, including midget submarines, in the approaches of defended ports. They have modern electronic equipment for armament, and a comprehensive electrical installation. Gelderland was built by A. & J. Inglis Ltd., Glasgow. Second ship, Nautilus, was purchased in 1955. Rijger was launched at Vosper Ltd., Portsmouth, on 6 Feb. 1958. Haerlem was launched at Vosper Ltd., Portsmouth, on 18 June 1958. Oosterland was launched at Vosper Ltd., Portsmouth, on 27 Jan. 1959. All three of these later ships are fitted with roll damping fins developed and manufactured by Vosper. Haerlem has had a charthouse added aft while employed as an inshore survey boat.

A photograph of Gelderland appears in the 1955-56 edition, of Nautilus in the 1956-57 to 1959-60 editions, and of Haerlem in the 1960-61 to 1963-64 editions.

BOOM DEFENCE VESSELS



SOMERSET 1956, R. M. Scott

2 British "Bar" Class

FLEUR (ex-H.M.S. Barbrake) P 273 SOMERSET (ex-H.M.S. Barcross) P 285
Displacement: 750 tons standard (919 to 960 tons full load)
Dimensions: 150 (pp.), 182 (o.a.)×32½×11½ (max.) feet
Machinery: Triple expansion, 160 r.p.m. I.H.P.: 850=11.75 kts. (designed). Sea speed: 9 kts.
Boilers: 2 S.E. (pressure 200 lb. per sq. in.)
Fuel: 214 tons coal (Fleur); 186 tons oil (Somerset)
Complement: 32

General
Engined by Wm. Simons and Swan, Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne, respectively. Transferred from Great Britain. Of the same type as the "Bar" class boom defence vessels in the Royal Navy. Renamed in 1951. Fleur after de la Ray's horse, and Somerset, the traditional name for Dick King's horse.

Name	Builders	Laid down:	Launched	Completed
Fleur	Wm. Simons & Co. Ltd., Renfrew	18 July 41	29 June 42	15 July 42
Somerset	Blyth Dry Docks & S.B. Co. Ltd.	15 Apr. 41	21 Oct. 41	14 Apr. 42

SPAIN

Administration

Minister of Marine:

Admiral Excmo. Sr. Don Pedro Nieto Antunez

Chief of Naval Staff:

Admiral Excmo. Sr. Don Fernando Melendez Bojart

Acting 2nd Chief of Naval Staff:

Vice-Admiral Excmo. Alfonso Colomina Boti.

Commander-in-Chief of the Fleet:

Vice-Admiral Excmo. Sr. Don Indalecio Nuñez Iglecias.

Naval Attaché in London:

Captain Sr. Don José Ramón González López.

Naval Attaché in Washington:

Captain Sr. Don José Estrán López.

Personnel

1965: Total 43,000 (3,900 officers, 29,400 ratings, 4,500 civil branch, 5,200 marines)

New Programme

A programme of new construction is being planned, including 5 frigates of U.S. design and 2 submarines of French design.

Navy Estimates

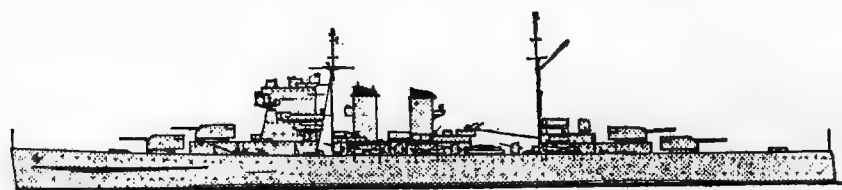
1958:	2,539,719,085.66	pesetas.
1959:	2,580,829,918.28	pesetas.
1960:	2,655,883,903.00	pesetas.
1961:	2,658,479,733.00	pesetas.
1962:	3,314,590,252.00	pesetas.
1963:	3,559,743,625.00	pesetas.
1964:	3,904,880,558.00	pesetas.
1965:	4,000,000,000.00	pesetas

Mercantile Marine

Lloyd's Register of Shipping:
1,741 vessels of 2,047,715 tons gross

Silhouettes

Scale: 150 ft.=1 inch.



CANARIAS



ALMIRANTE VALDES



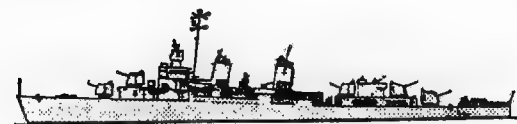
ALMIRANTE CERVERA



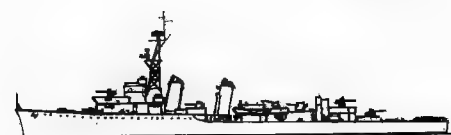
ALMIRANTE FERRANDIZ



GALICIA



LEPANTO



ALAVA, LINIERS



AUDAZ Class (as modernised)



EOLO, TRITON



JOSÉ LUIS DIEZ



PIZARRO Class



MARTE, NEPTUNO



ALMIRANTE ANTEQUERA Class



LEGAZPI, VICENTE YÁÑEZ PINZON



DESCUBIERTA



OQUENDO

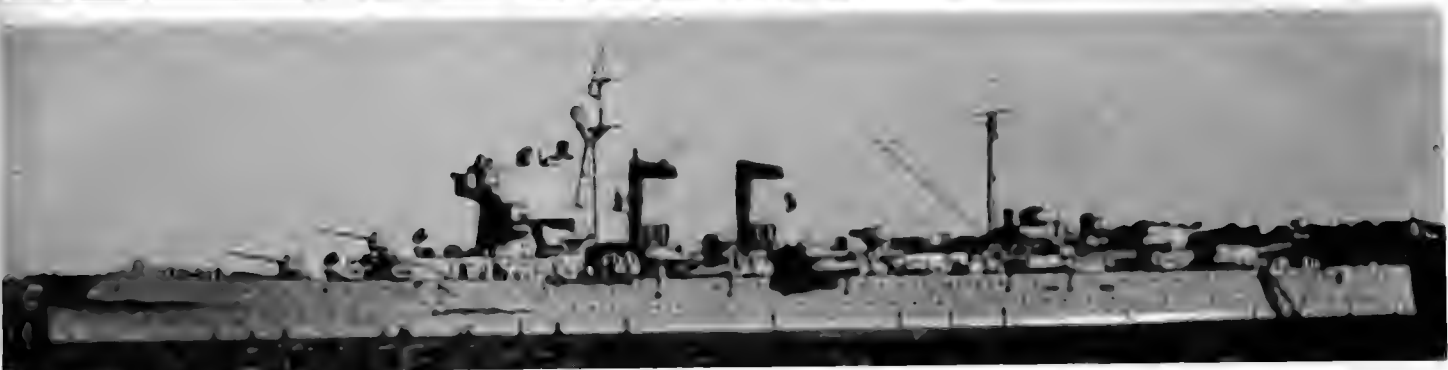


JUPITER, VULCANO



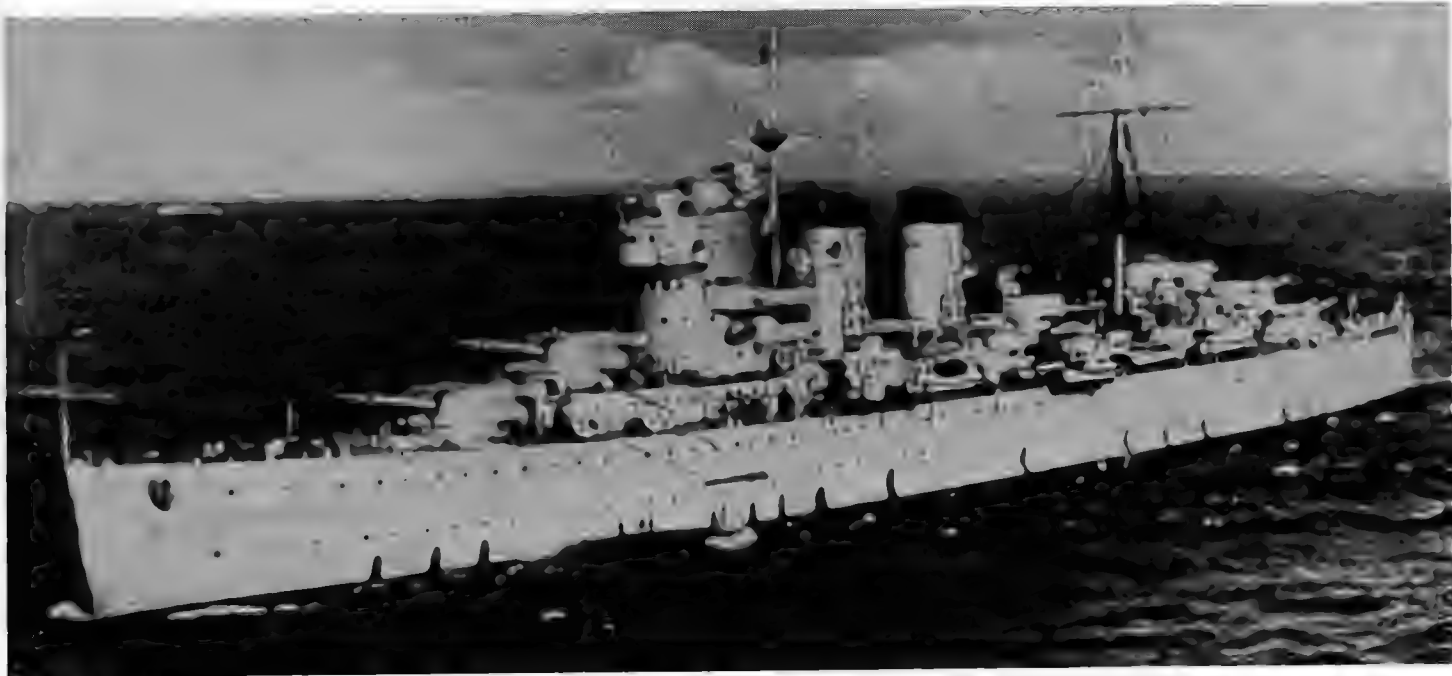
ATREVIDA Class

HEAVY CRUISER



CANARIAS

1964, Spanish Navy, Official



CANARIAS

Added 1957, courtesy Señor A. Aguilera

(Rated as Crucero Type 2)

CANARIAS

Pennant No.:	C 21
Builders:	Sociedad Española de Construcción Naval, Ferrol
Laid down:	15 Aug. 1928
Launched:	28 May 1931
Completed:	Sep. 1936
Displacement:	10,670 tons standard (12,230 tons full load)
Dimensions:	Length: 636 feet. Beam: 64 feet. Draught: 17½ (mean). 21½ (max.) feet
Guns:	8—8 inch, 50 cal., 8—4.7 inch AA., 45 cal., 12—37 mm. AA., 3—20 mm. AA.
Tubes:	Removed (see Torpedo Tube notes)
Armour:	1½—2" side, 1" turrets, 4" magazines.
Machinery:	Parsons geared turbines, 2 shafts. Designed S.H.P.: 90,000=33 kts.
Boilers:	8 Yarrow
Oil fuel:	2,794 tons
Radius:	8,000 miles at 15 kts.
Complement:	948

General
This ship was designed by the late Sir Philip Watts on the basic pattern of the contemporary British heavy cruisers of the later "County" classes. She was named after the Canary Islands. From completion until 1952 this ship had trunked funnels, but on completion of her refit early in 1953 she emerged with two separate funnels, this being a reversion to the original design which had never been carried out.

Modernisation
To be completely overhauled as Flagship of the Spanish Navy, under the Spanish Naval Modernisation Programme (under the United States Military Aid Programme).

Torpedo Tubes
The 12—21 inch torpedo tubes in triple mountings which she formerly carried, were removed in 1960.

Gunnery
The maximum elevation of the 8 inch guns is 70 degrees.

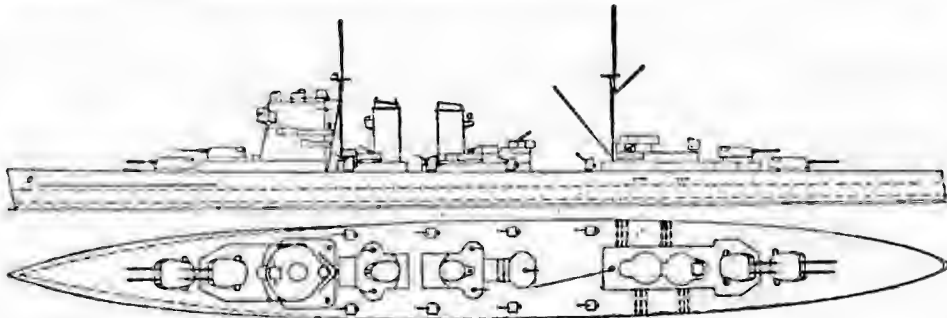
Class
Sister ship *Baleares* was torpedoed and sunk on 6 Mar. 1938 during the Spanish Civil War.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.

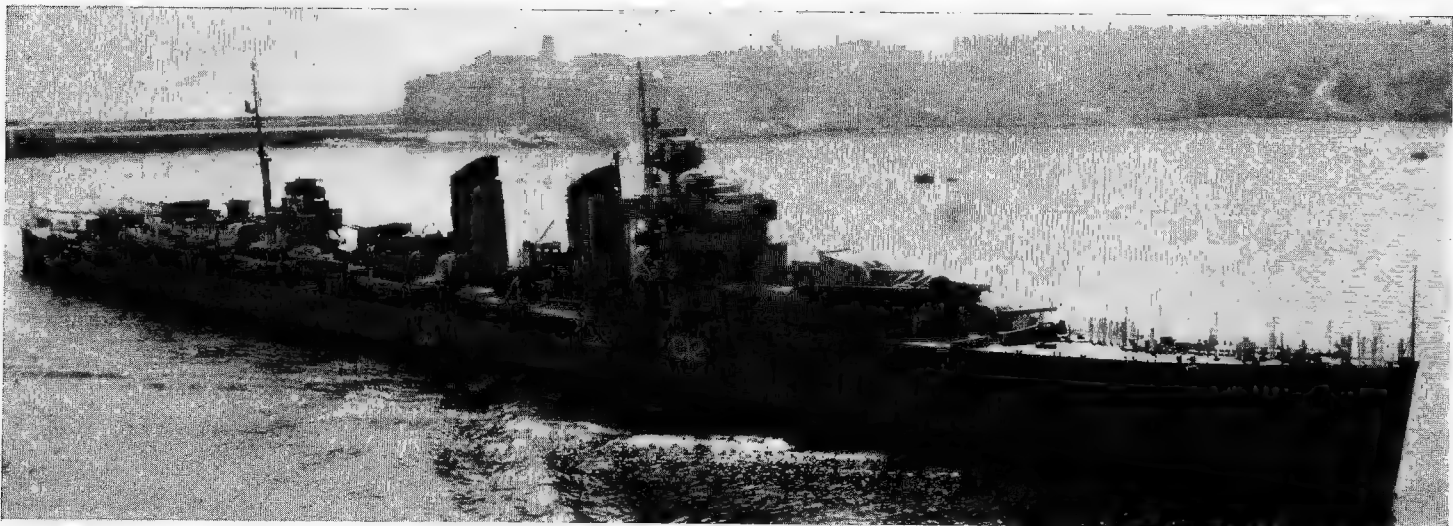


CANARIAS

1964, Spanish Navy, Official



CRUISERS



ALMIRANTE CERVERA
2 "Galicia" Class

1963, A. & J. Pavia

ALMIRANTE CERVERA
GALICIA (ex-Libertad, ex-Príncipe Alfonso)

Name:	Almirante Cervera Galicia	
Pennant No.:	C 12	C 11
Builders:	Ferrol Dockyard	Ferrol Dockyard
Engineers:	S.E.C.N.	S.E.C.N.
Laid down:	25 Nov. 1922	24 Nov. 1922
Launched:	16 Oct. 1925	23 Jan. 1925
Completed:	May 1927	Sep. 1927
Displacement:	Galicia: 8,250 tons standard (9,900 tons full load) Almirante Cervera: 7,976 tons standard (9,662 tons full load)	
Dimensions:	Length: 575 (pp.), 579½ (o.a.) feet. Beam: 54 feet. Draught: 16½ (mean) 20½ (max.) feet	
Guns:	Almirante Cervera: 8—6 inch, 50 cal. (3 twin, 2 single); 16—37 mm. AA.; 4—20 mm. AA. Galicia: 8—6 inch, 50 cal., 8—37 mm. AA., 20—20 mm. AA.	
Tubes:	Removed (see Torpedo Tube notes)	
Armour:	3" side (amidships), 2" side (forward). 1½" side (aft), 1" deck	
Machinery:	Parsons geared turbines 4 shafts. S.H.P.: 80,000=31.6 kts. (designed). Sea speed 25 kts.	
Bollers:	8 Yarrow (large tube)	
Oil fuel:	1,650 tons (1,709 tons max.)	
Radius:	5,000 miles at 15 kts., 1,200 miles at full power	
Complement:	564 to 603	

General
Built by the Sociedad Espanola de Construccion Naval at Ferrol Dockyard under the Navy Law of Feb. 1915. Designed under direction of the late Sir Philip Watts, K.C.B., for the Spanish Government. Reconstructed and modernised during 1940-46. Their armament was modified in 1957. Allocated C pennant numbers, instead of the old numbers, in 1961.

Gunnery
Almirante Cervera has single 6 inch guns in "A" and "Y" positions, and twin 6 inch guns in "B", "Q" and "X" positions. The four 4.1 inch AA. guns were removed, and eight 87 mm. AA. guns mounted in their place. Galicia has twin 6-inch guns in "A", "B", "X" and "Y" positions. The eight 3.5 inch guns were removed

Torpedo Tubes
The torpedo tubes, which were in revolving triple mounts on the upper deck, 12—21 inch in Almirante Cervera and 6—21 inch in Galicia, were removed in 1960.

Engineering
On trials Galicia developed 83,000 S.H.P. and attained a speed of 34.7 kts. Almirante Cervera was originally rated at 34 kts.

Appearance
Galicia mounts a radar scanner just abaft the main director on the bridge on a small lattice tower. The ships have recognition numbers painted on the hull forward, see photographs of Almirante Cervera.

Nomenclature
Respective names are those of the Commander-in-Chief of the Spanish fleet in the West Indies during the war with the U.S.A. in 1898, Admiral Pascual Cervera y Topete; and the north-western region of Spain.

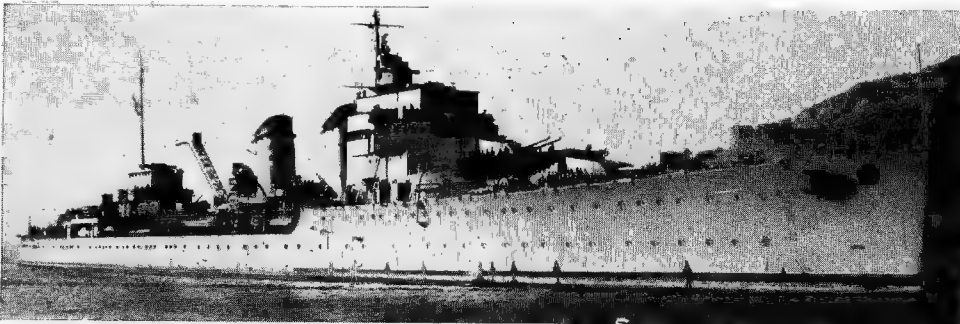
Disposals
Sister ship Miguel de Cervantes is no longer seagoing, having been confined to port at Cartagena, little more than a hulk since 1964. Galicia has been in a state of disponibilidad since 20 May 1964.

Disposals of Older Cruisers
The anti-aircraft cruiser Mendez Nufiez was officially deleted from the list in 1963, and the light cruiser Navarra in 1956.



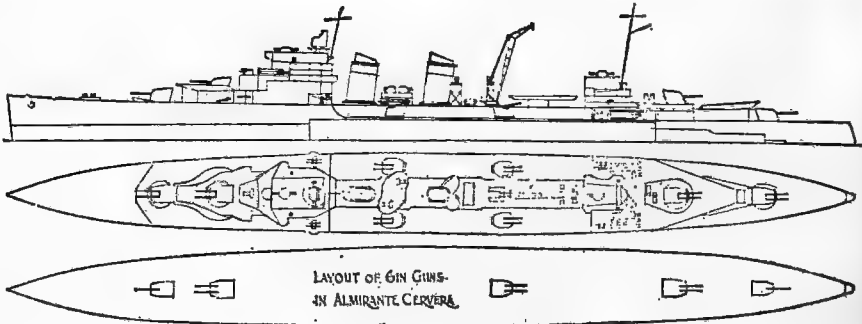
ALMIRANTE CERVERA

1963, A. & J. Pavia



GALICIA

1962, courtesy Señor A. Aguilero



Drawing
Port elevation (composite representation of both ships). Crane only in Galicia.
Plan of Galicia (upper plan)
Plan of Almirante Cervera (lower plan)
Scale: 128 feet=1 inch.

ANTI-SUBMARINE DESTROYERS (Destructoros Caza Submarinas)

MARQUÉS DE LA ENSENADA
ROGER DE LAURIA

Displacement: 3,496 tons (revised official figures);
Oquendo: 2,135 tons standard (2,893 tons full load)
Dimensions: 391½×41×18 feet
Oquendo: 382×36½×12½ feet
Guns: 3—5 inch, 38 cal. Oquendo: 4—4.7 inch, 50 cal. AA. (2 twin), 6—40 mm., 70 cal. AA.
A/S weapons: 2 Mk. 32 triple tubes; 2 Mk. 25 single tubes; 1 DASH
Oquendo: 2 Hedgehogs, 2 torpedo racks
Machinery: 2 Rateau-Bretagne geared turbines. S.H.P.: 60,000=38 kts.
Boilers: 3, of 3-drum type
Oil fuel: 673 tons (Oquendo 659 tons)
Radius: 2,500 miles at 20 kts.
Complement: 308 (Oquendo 267)

General
All ordered at Ferrol in 1947-48. Oquendo was initially completed at Bazan Shipyard on 13 Sep. 1960, and completed modernisation on 22 Apr. 1963.

Name	Laid down	Launched
Marqués de la Ensenada	4 Sep. 1951	15 July 1959
Oquendo	15 June 1951	5 Sep. 1956
Roger de Lauria	4 Sep. 1951	12 Nov. 1958



OQUENDO

1964, Empresa Nacional Bazan

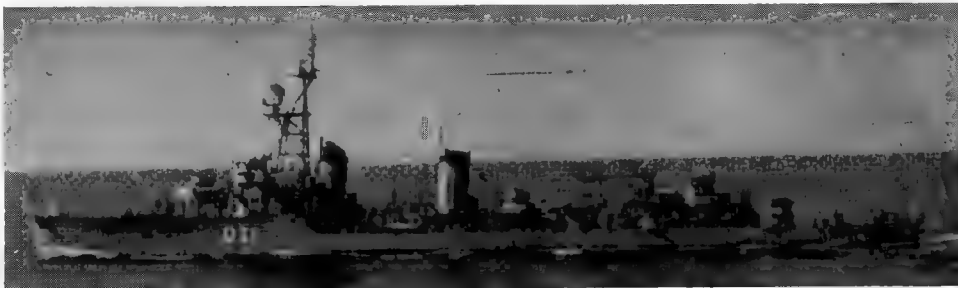
Construction
Originally designed as conventional destroyers, but modified during construction. The seven 21-inch torpedo tubes and two depth charge throwers were suppressed in favour of more modern anti-submarine weapons.
Roger de Lauria and Marqués de la Ensenada were towed to Cartagena and dismantled for reconstruction to a new design.

(Blas de Lezo, Blasco de Garay, Bonifaz, Gelmirez, Langara and Recalde of this class were cancelled in 1953).
Classification
This class was re-classified as anti-submarine frigates in 1955, again re-rated as fast frigates in 1956, and as anti-submarine destroyers in 1961.

9 "Audaz" Class
ARIETE INTREPIDO RAYO
AUDAZ METEORO (ex-Atrevido) RELAMPAGO
FUROR OSADO TEMERARIO

Displacement: 1,106 tons standard (1,484 tons full load)
Dimensions: 305×30½×10 (mean) feet
Guns: 2—3 inch, 50 cal. AA.; 2—40 mm., 70 cal. AA.
A/S weapons: 2 Hedgehogs, 8 mortars, 2 D.C. racks, 2 side launching torpedo racks, 6 A/S torpedoes
Machinery: Rateau-Bretagne geared turbines, 2 shafts. S.H.P.: 30,800=33 kts.
Boilers: 3, of 3-drum type
Oil fuel: 290 tons
Radius: 3,800 miles at 14 kts.

General
All built at Ferrol. Meanings of names: Ariete, battering ram; Audaz audacious; Furor, fury; Intrépido, fearless; Osado, daring; Rayo, thunderbolt; Relámpago, lightning flash; Temerario, venturesome. Allocated D pennant numbers in 1961.
Dates of delivery after modernisation:—Ariete 7 Feb. 1961, Audaz 28 June 1961, Furor 9 Sep. 1960, Meteoro 21 Feb. 1963, Osado Aug. 1961, Rayo 21 Feb. 1963. All of this class are equipped with U.S. electronic and ASW equipment under the Military Aid Programme.
Gunnery
Before modernisation these ships mounted 3—4.1 inch guns, 4—37 mm. AA. guns and 8—20 mm. AA. guns.



AUDAZ (as modernised)

1962, courtesy Mr. W. H. Davis

Engineering
The boilers are in two compartments separated by the engine rooms. Steam is superheated to 375 degrees Fahrenheit. Working pressure is 500 lb. per sq. in. Engines have developed 32,500 S.H.P.
Classification
This class of ships were originally projected as conventional destroyers but their classification was changed to fast frigates in 1955, they were again re-rated as anti-submarine frigates, in 1956, and as anti-submarine destroyers in 1961.

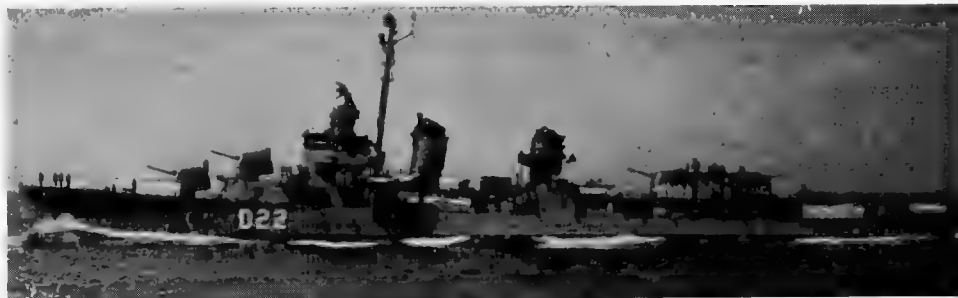
No.	Name	Laid down	Launched	Completed
D 36	Ariete	3 Aug. 45	24 Feb. 55	7 Feb. 61
D 31	Audaz	26 Sep. 45	24 Jan. 51	30 June 53
D 34	Furor	3 Aug. 45	24 Feb. 55	9 Sep. 60
	Intrépido	14 July 45	15 Feb. 61	
D 33	Meteoro	3 Aug. 45	4 Sep. 51	30 Nov. 55
D 32	Osado	3 Aug. 45	4 Sep. 51	25 Jan. 55
D 35	Rayo	3 Aug. 45	4 Sep. 51	25 Jan. 56
	Relámpago	14 July 45	26 Sep. 61	
D 37	Temerario	14 July 45	29 Mar. 60	16 Mar. 64

5 "Lepanto" Class

ALCALA GALIANO (ex-U.S.S. Jarvis, DD 799)
ALMIRANTE FERRANDIZ (ex-David W. Taylor DD 551)
ALMIRANTE VALDES (ex-U.S.S. Converse, DD 509)
JORGE JUAN (ex-U.S.S. McGowan, DD 678)
LEPANTO (ex-U.S.S. Capps, DD 550)

Displacement: 2,080 tons standard (3,050 tons full load)
Dimensions: 376½ (o.a.)×39½×18 (max.) feet
Guns: Almirante Ferrandiz, Lepanto, 5—5 inch, 38 cal.; 6—40 mm. Bofors AA.; 12—20 mm. Oerlikon AA. (6—20 mm. in Almirante Ferrandiz)
Alcalá Galiano, Almirante Valdés, Jorge Juan, 4—5 inch, 38 cal. (single mountings); 6—3 inch, 50 cal. (three twin mountings)
Tubes: 5—21 inch (quintupled)
A/S weapons: 2 Hedgehogs, 6 D.C.T., 2 D.C. racks, 2 side launching torpedo racks
Machinery: General Electric geared turbines, 2 shafts. S.H.P.: 60,000=35 kts.
Boilers: 4 Babcock & Wilcox
Oil fuel: 650 tons
Radius: 6,000 miles at 15 kts.
Complement: 250 (14 officers, 236 men)

General
Former United States fleet destroyers. Capps and David W. Taylor were the first units of the "Fletcher" class to be transferred to a foreign government; loaned to Spain for a period of five years, they were reconditioned at San Francisco and turned over to the Spanish Navy at San Francisco, California, on 15 May 1957 sailing for Spain on 1 July 1957. Converse was transferred to the Spanish Navy at Philadelphia on 1 July 1959. McGowan was transferred at Barcelona on 1 Dec. 1960 and Jarvis at Philadelphia on 3 Nov. 1960, both being of the later "Fletcher" class and transferred on a five year renewable loan basis, under the Military Aid Programme. All five ships were allocated D pennant numbers in 1961.
Photographs
A port bow oblique aerial view of Almirante Ferrandiz appears in the 1958-59 and 1959-60 editions, and a starboard bow view of Almirante Valdes (as re-armed) appears in the 1960-61 edition.



ALMIRANTE FERRANDIZ (five 5 inch, pole mast)

1962, Spanish Navy, Official



ALCALA GALIANO (four 5 inch, tripod mast)

1962, courtesy Señor A. Aguilera

No.	Name	Builders	Laid down	Launched	Completed
D 24	Alcalá Galiano	Todd Pacific Shipyards	12 June 1941	14 Feb. 1944	3 June 1944
D 22	Almirante Ferrandiz	Gulf S.B. Corp., Chickasaw, Ala.	12 June 1941	4 July 1942	18 Sep. 1943
D 23	Almirante Valdés	Bath Iron Works Corp., Maine	23 Feb. 1942	30 Aug. 1942	8 June 1943
D 25	Jorge Juan	Federal S.B. & DD. Co.		14 Nov. 1943	20 Dec. 1943
D 21	Lepanto	Gulf S.B. Corp., Chickasaw, Ala.	12 June 1941	31 May 1942	23 June 1943

DESTROYERS (Destructoros)

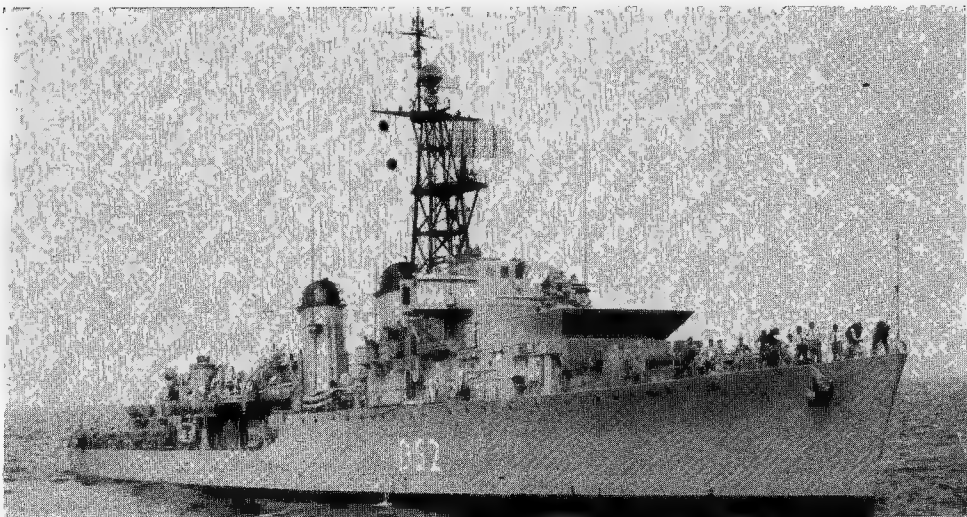
2 "Alava" Class

Name:	ALAVA	LINIERS
Pennant No.:	D 52 (ex-23)	D 51 (ex-21)
Builders:	Cartagena	Cartagena
Laid down:	21 Dec. 1944	1 Jan. 1945
Launched:	19 June 1947	1 May 1946
Completed:	21 Dec. 1950	27 Jan. 1951
Modernised:	18 Sep. 1961	18 Jan. 1962

Displacement:	1,650 tons standard (2,170 tons full load)
Dimensions:	333×31½×15 (mean) feet
Guns:	6—3 inch AA. (three twin, Mk. 34); 3—40 mm. 70 cal. AA.
Tubes:	Removed (see Torpedo Tubes)
A/S weapons:	2 Hedgehogs, 8 D.C. mortars, 2 D.C. racks 2 side launching torpedo racks, 6 A/S torpedoes
Machinery:	Parsons geared turbines 2 shafts. S.H.P.: 44,000=36 kts. (28 to 30 kts. sea speed)
Boilers:	4 Yarrow, of 3-drum type
Oil fuel:	480 tons
Radius:	4,200 miles at 15 kts.
Complement:	200

Construction
These two destroyers, a development of the *Churruca* design were ordered in 1936, but construction was held up by the Civil War. After being resumed, it was again suspended in 1940, but restarted at Cartagena in 1944.

Gunnery
Before modernisation these ships mounted 4—4·7 inch, 6—37 mm. AA. and 3—20 mm. AA. guns.



ALAVA

1964, courtesy Senor A. Aguilera

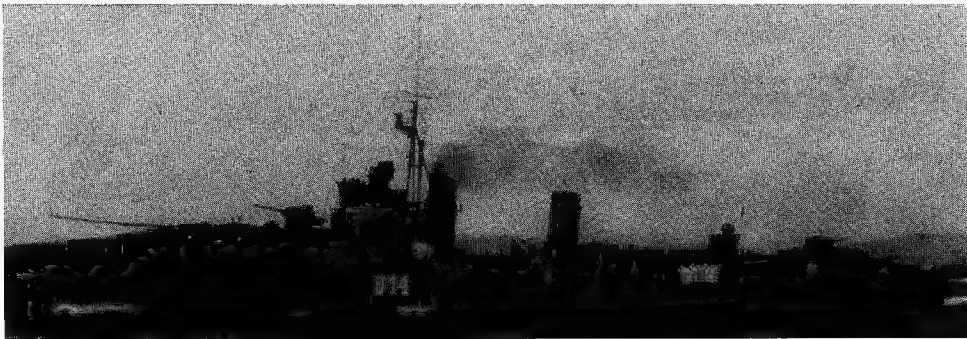
Torpedo Tubes

This class have no torpedo tubes since they were modernised, it was officially stated in 1960. They formerly carried 6—21 inch (tripled), but now have torpedo racks for six homing torpedoes instead of tubes.

2 "Almirante Antequera" Class
("Churruca" Group 2)

	ALMIRANTE ANTEQUERA	ALMIRANTE MIRANDA
Name:	Almirante Antequera	Almirante Miranda
Pennant No.:	D 14	D 15
Launched:	29 Dec. 1930	20 June 1931
Completed:	1934	1934

Displacement:	1,676 tons standard (2,175 tons full load)
Dimensions:	320 (pp.), 333 (o.a.)×31½×17 (max.) feet
Guns:	4—4·7 inch, 1—3 inch and 4—37 mm., 2—20 mm. AA.
A/S weapons:	4 D.C.T.
Tubes:	6—21 inch (tripled)
Machinery:	2 sets Parsons geared turbines. 2 shafts. S.H.P.: 42,000=36 kts.
Boilers:	4, of 3-drum type
Oil fuel:	540 tons
Radius:	4,500 miles at 14 kts
Complement:	195



ALMIRANTE ANTEQUERA

1965, Spanish Navy, Official

General

Built at Cartagena by Sociedad Española de Construcción Naval. This class is a later version of the "Sanchez Barcaiztegui" design. Now have D pennant numbers painted on bows which replaced the former numbers in 1961.

Disposals

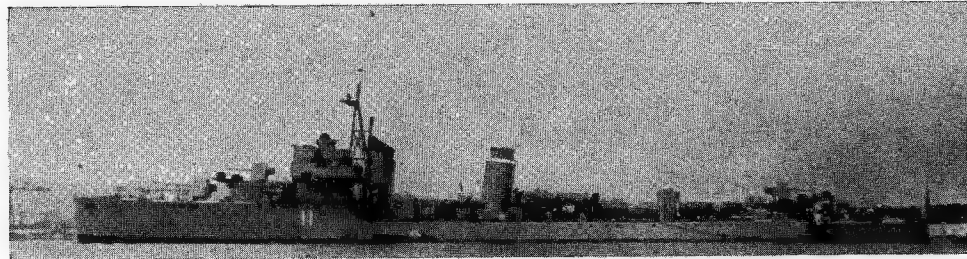
Ciscar, sunk in the Civil War in Oct. 1937, but salvaged and refitted in 1938-39, ran aground in fog and broke her back off El Ferrol on 17 Oct. 1957, and was discarded in 1958. *Jorge Juan* was removed from the Navy List in 1959, and *Escaño*, *Gravina* and *Ulfoa* in 1964.

1 "Sanchez Barcaiztegui" Class
("Churruca" Group 1)

JOSE LUIS DIEZ

Pennant No.:	D 12
Launched:	25 Aug. 1926
Completed:	1929

Displacement:	1,650 tons standard (2,087 tons full load)
Dimensions:	320 (pp.), 333 (o.a.)×31½×17 (max.) feet
Guns:	4—4·7 inch, 2—20 mm. AA.
A/S weapons:	4 D.C.T.
Tubes:	6—21 inch (tripled)
Machinery:	2 sets Parsons geared turbines. 2 shafts. S.H.P.: 42,000=36 kts.
Boilers:	4, of 3-drum type
Oil fuel:	500 tons
Radius:	4,500 miles at 14 kts.
Complement:	175



JOSE LUIS DIEZ

1955, Spanish Navy, Official

General

Based on the design of the contemporary British flotilla leaders of the "Scott" class. Built at Cartagena by Sociedad Española de Construcción Naval. The two earliest ships of this class, originally named *Alcalá Galiano* and *Churruca*, were sold to Argentina in 1927,

new units bearing the same names being built to replace them. Another ship of this class, *Almirante Juan Ferrandiz* was sunk in the Spanish Civil War in Sep. 1936. *Churruca* was torpedoed by submarine, but repaired. Now has D pennant number painted on bows, which replaced the former number in 1961.

Disposals

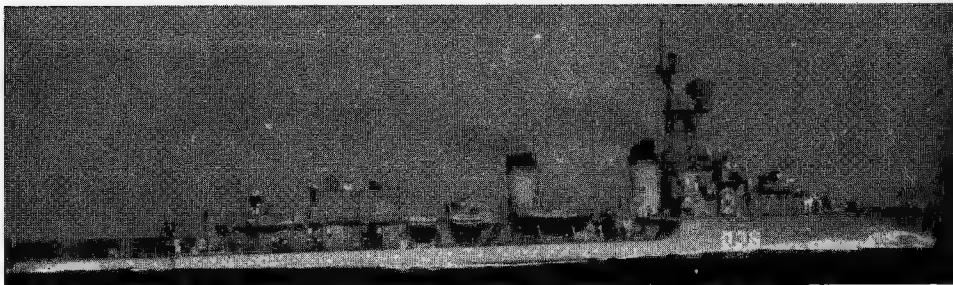
Of the "Churruca" Group 1 the old destroyer *Lepanto* was removed from the effective list in Aug. 1957 when a newer *Lepanto* (ex-U.S.S. *Capps*) joined the Spanish fleet (see previous page).

The *Alcalá Galiano* of the "Churruca" Group 1 and *Almirante Valdes* were also removed from the effective list at the end of 1957.

Churruca was officially deleted from the active list in 1964, and *Sanchez Barcaiztegui* in 1965.

Disposals of older Destroyers

Of the "Alseda" class, *Alseda* and *Velasco* were removed from the effective list in 1957, and *Lazaga* in Jan. 1961.



ARIETE (after modernisation) see previous page

1962, Spanish Navy, Official

FRIGATES (rated as *Fragatas*)

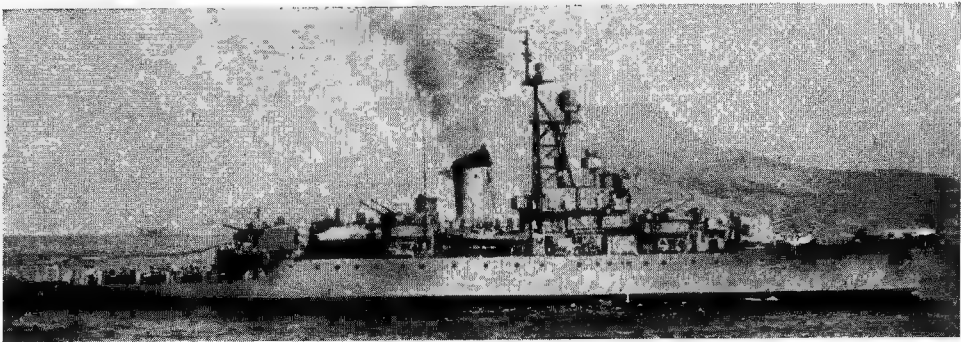
8 "Pizarro" Class

HERNAN CORTES
LEGAZPI
MAGALLANES
PIZARRO

MARTIN ALONSO PINZON
SARMIENTO DE GAMBOA
VASCO NUÑEZ DE BALBOA
VICENTE YANEZ PINZON

Displacement: 1,710 tons standard (2,246 tons full load)
Dimensions: 279 (pp.), 312½ (o.a.)×39½×11 feet
Guns: Legazpi and Vicente Yañez Pinzon as modernised: 2—5 inch 38 cal.; 4—40 mm., 70 cal. AA. Remainder: 6—4.7 inch AA. (3 twin), 8—37 mm. AA., 6—20 mm. AA.
A/S weapons: Legazpi and Vicente Yañez Pinzon as modernised: 2 Hedgehogs, 8 mortars, 2 D.C. racks, 2 side launching torpedo racks Remainder: 4 D.C.T.
Mines: 30 (capacity) can be carried
Machinery: 2 sets Parsons geared turbines. shafts. S.H.P.: 5,000=18.5 kts.
Boilers: 2 Yarrow
Oil fuel: 386 tons normal, 402 tons max.
Radius: 3,000 miles at 14 kts.
Complement: 250

General
All built at Ferrol. Designed to carry 30 mines. Rated as *Canoneras* (Gunboats) until 1958 when they were officially re-rated as *Fragatas*. Allocated F pennant numbers in 1961. Legazpi and Vicente Yañez Pinzon completed modernisation on 14 Jan. and 25 Mar. 1960 respectively.



VICENTE YANEZ PINZON (as modernised) 1962, courtesy Mr. W. H. Davis

Pen. No.	Name	Launched	Completed	Pen. No.	Name	Launched	Completed
F 32	Hernan Cortes	3 Aug. 1944	18 Sep. 1947	F 31	Pizarro	3 Aug. 1944	9 Aug. 1946
F 42	Legazpi	8 Aug. 1944	8 Aug. 1951	F 36	Sarmiento de Gamboa	8 Aug. 1944	2 May 1950
F 35	Magallanes	8 Aug. 1944	20 Dec. 1948	F 33	Vasco Nuñez de Balboa	3 Aug. 1944	15 Mar. 1947
F 34	Martin Alonso Pinzon	3 Aug. 1944	18 Mar. 1948	F 41	Vicente Yañez Pinzon	3 Aug. 1944	5 Aug. 1949

FRIGATE MINELAYERS (*Minadores*)

2 "Eolo" Class

Name: EOLO TRITÓN

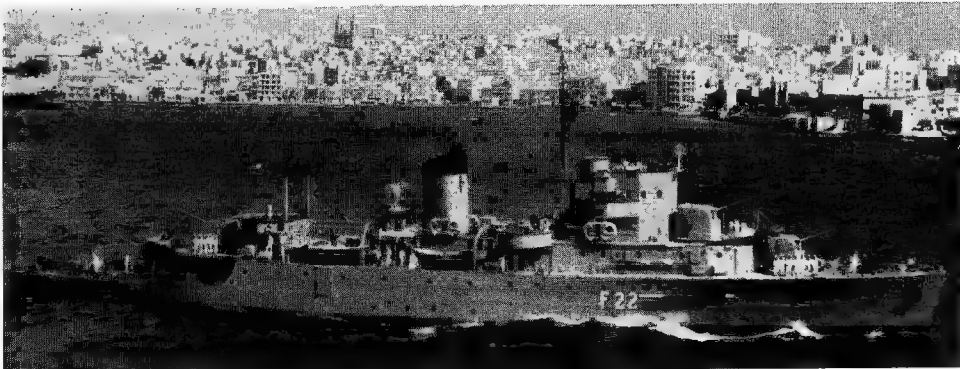
Pennant No.: F 21 F 22

Launched: 30 Aug. 1939 24 Feb. 1940

Completed: July 1942 Oct. 1943

Displacement: 1,500 tons standard (1,900 tons full load)
Dimensions: 278×38½×10 feet
Guns: 4—4.1 inch, 4—37 mm. AA., 4 M.G.
A/S weapons: 2 D.C.T.
Mines: Stowage for 170 (Tritón, 180)
Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 5,000=19.5 kts.
Boilers: 2 Yarrow
Oil fuel: 300 tons

General
Both built by the Sociedad Española de Construcción Naval, Ferrol. Dual purpose frigates or gunboats and minelayers. Allocated F pennant numbers in 1961. A port quarter view of Eolo, showing minelaying stern, appears in the 1961-62 edition.



TRITÓN 1962, A. & J. Pavla

4 "Jupiter" Class

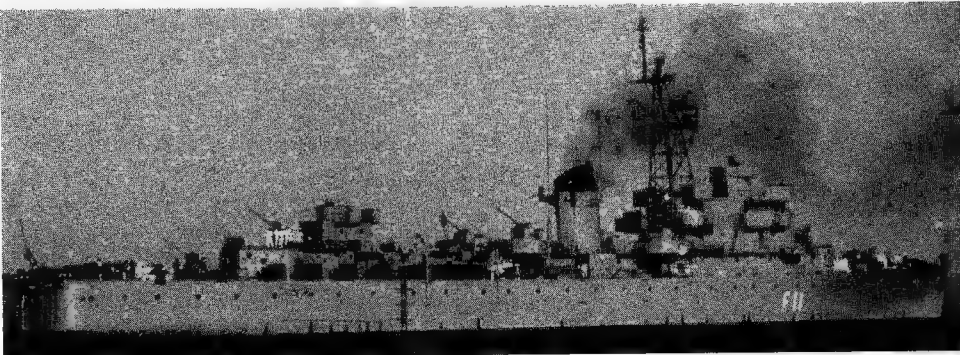
Name	Pennant Nos.	Launched	Completed
JUPITER	F 11	14 Sep. 1935	1937
MARTE	F 01	19 June 1936	1937
NEPTUNO	F 02	19 Dec. 1937	1938
VULCANO	F 12	18 Oct. 1935	1937

Displacement: 2,100 tons standard (2,600 tons full load)
Dimensions: 302½ (pp), 315 (o.a.)×41½×11½ feet
Guns: Jupiter and Vulcano as modernised: 4—3 inch AA. (single, Mk. 26); 4—40 mm., 70 cal. AA. Marte: 4—4.7 inch, 2—3 inch AA. 3—37 mm. AA., 2—20 mm. AA. Neptuno: 4—4.7 inch, 4—37 mm. AA., 3—20 mm. AA.
A/S weapons: Jupiter and Vulcano have been modernised with 2 Hedgehogs, 8 mortars, 2 D.C. racks.
Mines: Stowage for 264 max., normally less
Machinery: 2 sets Parsons geared turbines. 2 shafts. S.H.P.: 5,000=18.5 kts.
Boilers: Yarrow
Oil fuel: 280 tons
Complement: 123

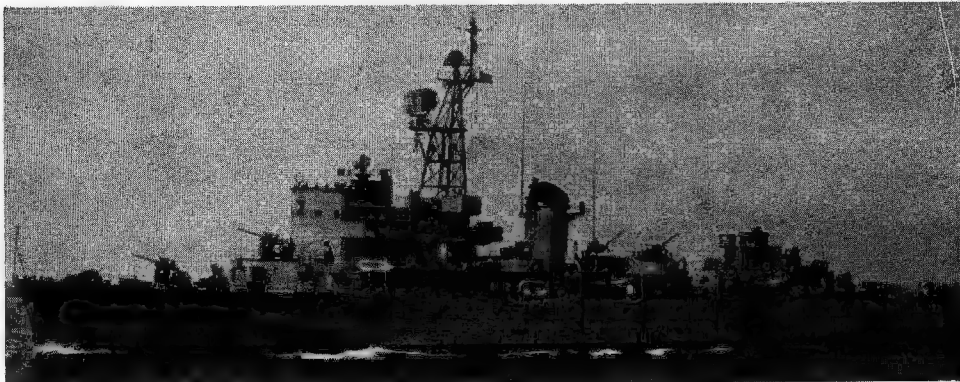
General
All built by the Sociedad Española de Construcción Naval, Ferrol. Multi-purpose frigates or gunboats and cruising type minelayers. Neptuno is midshipmen's training ship. The modernisation of Jupiter was completed on 28 Oct. 1960, and of Vulcano on 28 Feb. 1961. All allocated F pennant numbers in 1961.

Photographs
A port broadside view of Neptuno appears in the 1956-57 to 1963-64 editions

Disposals
The frigate Canovas del Castillo was officially stricken from the list in 1959.
The larger frigate Calvo Sotelo (ex-Zacatecas) of the "Durango" type was removed from the effective list at the end of 1957.



JUPITER 1964, Spanish Navy, Official



VULCANO (as modernised) 1962, Spanish Navy, Official

SUBMARINES (Submarinos)

ALMIRANTE GARCIA DE LOS REYES E 1
(ex-U.S.S. Kraken, SS 370)

Pennant No.: S 31
Builders: Manitowoc S.B. Co.
Laid down: 30 Apr. 1944
Completed: 8 Sep. 1944 (commissioned)
Displacement: 1,526 tons standard, 1,816 tons surface (2,040 tons submerged)
Dimensions: 312×27×17 feet
Tubes: 10—21 inch
Machinery: 4 diesels, B.H.P.: 6,400=20 kts. (surface). Electric motors, H.P.: 4,600=10 kts. (submerged)

General
Ex-U.S. "Balao" class. Transferred in Oct. 1959 after modernisation and overhaul at Pearl Harbour.



ALMIRANTE GARCIA DE LOS REYES

1961, Spanish Navy, Official

3 "D" Class

Name	No.	Laid down	Launched	Completed
D 1	S 11	Sep. 1933	11 May 1944	18 Mar. 1947
D 2	S 21	Sep. 1934	21 Dec. 1944	2 Apr. 1951
D 3	S 22	Sep. 1945	20 Feb. 1952	20 Feb. 1954

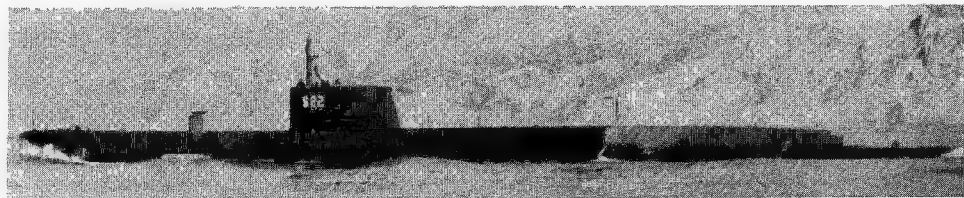
Displacement: 1,065 tons surface (1,480 tons submerged)
Dimensions: 275½×21½×13 feet (mean)
Guns: None as modernised
Tubes: 6—21 inch (4 bow, 2 stern)
Machinery: 2 Sulzer diesels, B.H.P.: 5,000=20.5 kts. (surface)
Electric motors, H.P.: 1,300=9.5 kts. (submerged)
Radius: 9,000 miles (surface)
Complement: 60

General
Ordered under the 1926 Programme. All built at the Sociedad Española de Construcción Naval, Cartagena. Construction was held up by the Civil War. Diving limit, 50 fathoms. D 3 on trials early 1953, D 2 (S 21) and D 3 (S 22) were delivered after modernisation on 10 Dec. 1963 and 14 Mar. 1963, respectively. Allocated S pennant numbers in 1961.



D 1

1965, Spanish Navy, Official



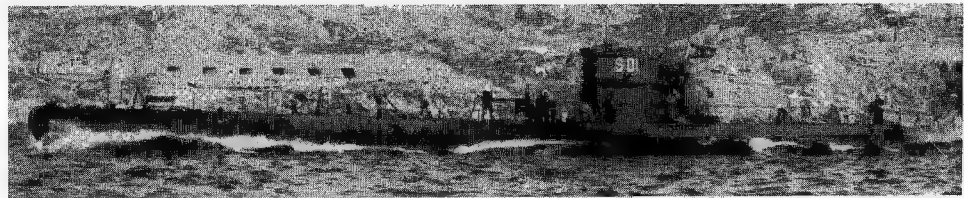
D 3

1964, Empresa Nacional Bazan

I Ex-German Type

G 7 (ex-U 573)

Pennant No.: S 01
Builders: Blohm & Voss, Hamburg
Displacement: 757 tons surface (857 tons submerged)
Dimensions: 228½×20½×14½ feet
Guns: 1—3.5 inch
Tubes: 5—21 inch (4 bow, 1 stern)
Machinery: Diesels, B.H.P.: 3,000=17.9 kts. (surface)
Electric motors, H.P.: 750=8.5 kts. (submerged)
Radius: 9,000 miles (surface)
Complement: 45



G 7 (new pennant No. S 01)

1962, courtesy Señor A. Aguilera

General
Former German U-boat of the VII C Type. Interned in Spain in 1942. Purchased from Germany the following year. Allocated S pennant number in 1961.

Cancellation
The construction of four new submarines G 1, G 2, G 3, G 4 (G 5 and G 6 were also projected originally) ordered in 1945 at Cartagena, which were to have been generally similar to the Ex-German G 7, was abandoned. U.S. submarines were expected to be acquired under the Mutual Defense Assistance Program in their place.

Disposals
The two former Italian submarines General Mola (ex-Evangelista Torricelli) and General Sanjurjo (ex-Archimede) were removed from the Navy List in 1959.

2 "Tiburón" Class

SA 51
Displacement: 80 tons (official revised figure)
Dimensions: 70×6×7 feet
Machinery: Speed: 10 kts. surface, 15 kts. submerged
Complement: 5 officers and men

General
Midget submarines launched in 1958. All four originally rated Submarinos Experimentales, but in 1963 designated Assault Submarines with "SA" numbers.

2 "Foca" Class

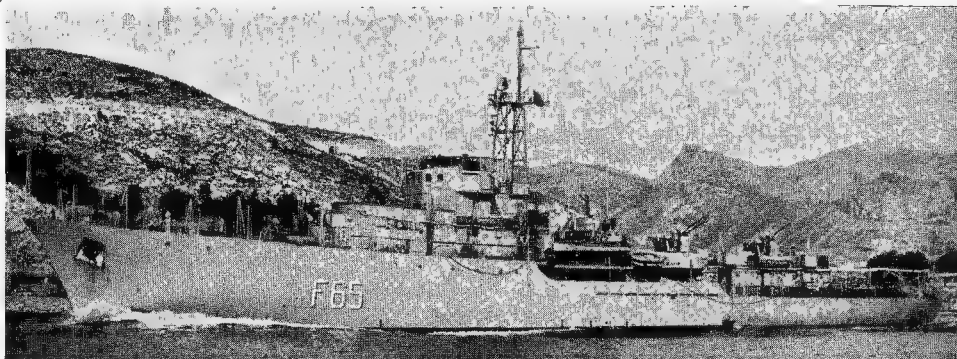
SA 52 SA 41 SA 42
Displacement: 16 tons
Dimensions: 39½×6½×5½ feet
Machinery: Speed: 9.2 kts. surface, 12 kts. submerged
Radius: 700 miles
Complement: 2

General
Midget submarines launched in 1957 and numbered in 1958.

CORVETTES (Corbetas)

6 "Atrevida" Class

ATREVIDA DIANA PRINCESA
DESCUBIERTA NAUTILUS VILLA DE BILBAO
Displacement: 912 tons standard (1,022 tons full load)
Dimensions: 247½ (o.a.)×33½×9½ feet
Guns: Descubierta: 1—4.1 inch AA., 2—37 mm. (twin mount), 12—20 mm. (3 quadruple mounts)
Remainder, as modernised: 1—3 inch, Mk. 26; 3—40 mm., 70 cal. AA.
A/S weapons: Descubierta: 4 D.C.T.
Remainder, as modernised: 2 Hedgehogs, 8 mortars, 2 D.C. racks
Mines: 20 (capacity) can be carried
Machinery: 2 Diesels, 2 shafts; B.H.P.: 3,000=18.5 kts.
Oil fuel: 100 tons
Radius: 7,000 miles
Complement: 113



VILLA DE BILBAO (as modernised)

1961, courtesy Señor A. Aguilera

Name	No.	Laid down	Launched	Completed
Atrevida	F 61	26 June 50	9 June 52	19 Aug. 54
Descubierta	F 51	26 June 50	2 Dec. 52	1 Feb. 55
Diana	F 63	27 July 53	29 Apr. 55	13 May 60
Nautilus	F 64	27 July 53	23 Aug. 56	15 Dec. 59
Princesa	F 62	18 Mar. 53	31 Mar. 56	3 Oct. 59
Villa de Bilbao	F 65	18 Mar. 53	19 Feb. 58	2 July 60

General
Atrevida, Descubierta, Diana and Princesa were built at Cartagena. Nautilus and Villa de Bilbao were built at Cadiz. Atrevida commissioned on 19 Aug. 1954. Descubierta commissioned in 1955. With the exception of

Descubierta all have been modernised since 1959. Princesa was delivered on 3 Oct. 1959. Nautilus on 15 Dec. 1959. Diana on 13 May 1960. Atrevida on 14 June 1960. and Villa de Bilbao on 2 July 1960. Allocated F pennant numbers in 1961.

FLEET MINESWEEPERS (Dragaminas)

ALMANZORA

1964, Empresa Nacional Bazan

7 "Almanzora" Class

Name	Pennant No.	Builders	Launched	Completed	Modernised
ALMANZORA	M 14	Cartagena	27 July 1953	1954	20 May 1960
EO	M 17	Cadiz	Sep. 1953	Mar. 1955	23 Mar. 1961
EUME	M 13	Cartagena	27 July 1953	Dec. 1953	29 July 1960
GUADALHORCE	M 16	Cartagena	18 Feb. 1953	1953	18 Feb. 1960
GUARDIARO	M 11	Cartagena	26 June 1950	Apr. 1953	14 Oct. 1959
NAVIA	M 15	Cadiz	Sep. 1953	Mar. 1955	22 Nov. 1960
TINTO	M 12	Cartagena	26 June 1950	May 1953	28 July 1959

Displacement: 615 tons standard (770 tons full load)
 Dimensions: 203×28×8 feet
 Guns: 2—20 mm. AA.
 Machinery: Triple expansion and exhaust turbines, 2 shafts. H.P.: 2,400=16 kts.
 Boilers: 2 three-drum water-tube
 Oil fuel: 192 tons coal
 Radius: 3,000 miles at 10 kts.
 Complement: 80

General

Former Pennant Nos. were DM 11, 13, 10, 14, 8, 12, 9, respectively. Allocated new M Pennant Nos. in 1961. Until modernisation the armament also included 1—3.5 inch gun and 1—37 mm. AA. gun.



BIDASOA

1964, Spanish Navy, Official

6 "Bidasoa" Class

Name	Pennant No.	Builders	Launched	Completed
BIDASOA	M 01	Cartagena	15 Sep. 1943	1946
LEREZ	M 03	Cartagena	21 Dec. 1944	1947
NERVION	M 02	Cartagena	15 Apr. 1944	1946
SEGURA	M 05	Cartagena	15 Apr. 1945	1949
TAMBRE	M 04	Ferrol	18 Oct. 1944	1944
TER	M 06	Cartagena	15 Apr. 1945	1948

Displacement: 615 tons standard (709 tons full load)
 Dimensions: 189 (pp.), 210 (o.a.)×28×7½ feet
 Guns: 1—4.1 inch, 1—37 mm. AA., 2—20 mm. AA.
 Machinery: Triple expansion and exhaust turbines, 2 shafts. H.P.: 2,400=16.5 kts.
 Boilers: 2
 Fuel: 190 tons coal
 Radius: 3,000 at 10 kts.
 Complement: 65

General

German M-Boote 40 type. Named after rivers. Formerly carried pennant numbers DM 1, 5, 3, 2, 6, 4, 7, respectively. Allocated new M pennant numbers in 1961.

Guadalete, of this class, which was employed as a coastguard vessel, sank in a gale 20 miles east of Gibraltar on 25 Mar. 1954.

LANDING CRAFT**3 New Construction. "EDIC" Type**

Displacement: 279 tons standard (665 tons full load)
 Dimensions: 193½×39×10½ feet
 Guns: 2—20 mm. AA.
 Machinery: 2 diesels. B.H.P.: 1,040=9.5 kts.
 Complement: 16

General

Landing craft of the French EDIC type under construction at Bazan Shipyard, La Carraca.

PATROL BOAT**CABO FRADERA**

Displacement: 21 tons
 Dimensions: 58½×14×5½ feet
 Machinery: 2 diesels. B.H.P.: 280=12 kts.
 Complement: 9

General

Built at Bazan Shipyard, La Carraca, in 1963. (The river patrol boat Cabo Fradera was disposed of).

PATROL VESSELS (Patrulleros)

JAVIER QUIROGA

1963, Spanish Navy, Official

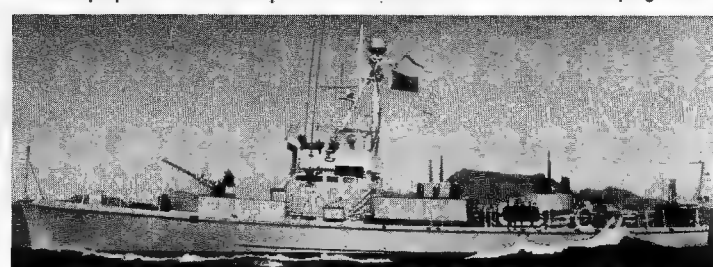
I Ex-U.S. PC Type**JAVIER QUIROGA (ex-Blue Arrow, ex-U.S.S. PC 1211)**

Displacement: 280 tons standard (450 tons full load)
 Dimensions: 170 (w.l.), 173½ (o.a.)×32×10½ (max.) feet
 Guns: 1—3 inch d.p., 1—40 mm. AA.
 A/S weapons: 4 D.C.T.
 Machinery: 2 H.O.R. diesels, 2 shafts. B.H.P.: 2,880=20 kts.

General

Former U.S. submarine chaser of the "173 ft." steel type. Built by Luders Marine Construction Co., Stamford, Conn. Laid down on 11 Aug. 1942, launched on 12 Mar. 1943, and completed on 16 Aug. 1943. Purchased by Spain and transferred to the Spanish Navy on 24 Oct. 1956.

It was proposed to build 12 patrol vessels under the new construction programme.



CANDIDO PEREZ

1961, Spanish Navy, Official

I Ex-U.S. SC Type**CANDIDO PEREZ (ex-SC 679)**

Displacement: 138 tons standard (148 tons full load)
 Dimensions: 107½ (w.l.), 111 (o.a.)×19×7 (max.) feet
 Guns: 1—40 mm. AA., 3—20 mm. M.G.
 A/S weapons: 2 D.C.T.
 Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,000=15.6 kts.
 Radius: 2,300 miles

General

Former United States submarine chaser of the "110 ft." wooden type. Built by Walter E. Abrams Shipyard, Inc. Laid down on 4 Mar. 1942. Launched on 29 Aug. 1942. Completed on 19 Dec. 1942. Transferred to Spain in 1957.

COASTAL MINESWEEPERS

ULLA

1962, A. & J. Pavia

12 Ex-U.S. AMS Type

DUERO (ex-Spoonbill, MSC 202) SIL (ex-Redwing, MSC 200)
 Ebro (ex-AMS 266) TAJO (ex-AMS 287)
 GENIL (ex-AMS 279) NALÓN (ex-AMS 139) TURIA (ex-AMS 130)
 JUCAR (ex-AMS 220) ODIEL (ex-AMS 288) ULLA (ex-AMS 265)

Displacement: 375 tons standard (405 tons full load)
 Dimensions: 138 (pp.), 144 (o.a.)×26½×8 feet
 Guns: 1—20 mm. AA.
 Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,200=14 kts.
 Oil fuel: 30 tons
 Radius: 2,500 miles at 10 kts.
 Complement: 34

General

Anti-magnetic minesweepers transferred from the U.S.A. Nalón on 16 Feb. 1954, Llobregat on 5 Nov. 1954. Turia on 1 June 1955. Jucar (launched at Bellingham, Wash., on 24 June, 1955) on 22 June, 1956; Ulla on 24 July, 1956; Miño on 25 Oct. 1956. Redwing and Spoonbill of the United States "Bluzbird" class on 16 June 1959, Ebro on 19 Dec. 1958, Genil on 11 Sep. 1959, Tajo on 9 July, 1959 and Odriel, 9 Oct. 1959, all under the Military Aid Program. Pennant Nos. M 28 Duero, M 26 Ebro, M 31, Genil, M 23 Jucar, M 22, Llobregat, M 25 Miño, M 21, Nalón, M 32 Odriel, M 29 SU, M 30 Tajo, M 27 Turia M 24 Ulla.

MOTOR TORPEDO BOATS (*Lanchas Torpederas*)

LT 32

1960, Spanish Navy, Official

LT 30		LT 31	LT 32
Displacement:	120 tons standard (140 tons full load)		
Dimensions:	114×16½×5 feet		
Guns:	2—20 mm. AA., 4 M.G.		
Tubes:	2—21 inch		
Machinery:	3 diesels, 3 shafts. B.H.P.: 7,500=41 kts.		
Oil fuel:	20 tons		
Radius:	700 miles at 30 kts.		
General Complement:	22		

Built at La Carraca, Cadiz, to the design of Lurssens of Bremen, LT 31 was commissioned on 21 July 1956. LT 32 was launched in 1956.

LT 27, LT 28 and LT 29 were removed from the effective list in 1963. Of the six ex-German motor torpedo boats of the S 100 class, LT 24 and LT 25 were discarded in 1955, LT 21, LT 22 and LT 23 in 1956, and LT 26 in 1958.

LANDING SHIPS (*Borcasas de Desembarco*)

LSM 2

1965, Spanish Navy Official

LSM 1 (ex-U.S.S. LSM 329)	LSM 2 (ex-U.S.S. LSM 331)	LSM 3 (ex-U.S.S. LSM 343)
Displacement:	743 tons beaching (1,095 tons full load)	
Dimensions:	196½ (w.l.), 203½ (o.a.)×34½×8½ feet	
Guns:	2—40 mm. AA.	
Machinery:	Diesel direct drive, 2 shafts. B.H.P.: 2,800=12.5 kts.	
General Complement:	59	

Medium landing ships transferred at Bremerton, Washington, on 25 Mar. 1960.

K 1	K 2	K 3	K 4	K 5
Displacement:	600 tons standard (894 tons full load)			
Dimensions:	185½×38×10½ feet			
Guns:	2—20 mm. AA.			
Machinery:	B.H.P.: 1,000=7 kts.			

Three of particulars given above built by Bazan, Ferrol. Other two of British LCT (4) Type, 440 tons standard (720 tons full load) with a speed of ten knots.

(There are also 13 LCMs (*Lanchas de Desembarco*) numbered LCM 1 to LCM 13, and 5 LCPs numbered LCP 1 to LCP 5.)

SURVEYING VESSELS (*Buques Hydrografos*)

TOFINO

1965, Spanish Navy, Official

MALASPINA (ex-Bausa)		TOFINO
Displacement:	990 tons standard (1,200 tons full load)	
Dimensions:	224×35×11 feet	
Guns:	1—47 mm., 2 M.G. AA.	
Machinery:	Triple expansion, 2 shafts. I.H.P.: 850=12.5 kts.	
Boilers:	2 Yarrow	
Fuel:	190 tons	
General Complement:	130	

Construction

Built by Matagorda, Cadiz and Ferrol, respectively. Launched on 13 Sep. 1935 and 21 Aug. 1933. Photograph of *Malaspina* in the 1957-58 to 1964-65 editions.

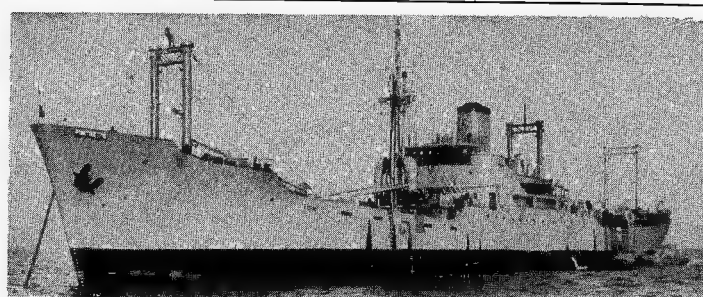
IUAN DE LA COSA (ex-Artabra)

Displacement:	770 tons standard (1,026 tons full load)
Dimensions:	177½×35½×8½ feet
Machinery:	B. & W. diesels, electric drive. B.H.P.: 700=9 kts.

General Built by U.N.L., Valence, launched in 1935. Carries one aircraft. Photograph in the 1950-51 to 1957-58 editions.

H 2		H 3
Displacement:	256 tons	
Dimensions:	100×20×9 feet	
Machinery:	H.P.: 300	

General Launches employed as survey tenders. Sister ship H 1 was stricken off in 1952.

TRANSPORTS

ALMIRANTE LOBO

1964, Spanish Navy, Official

ALMIRANTE LOBO (ex-Torrelaguna)

Displacement:	7,750 tons
Dimensions:	342×48×22 feet
Guns:	1—4.1 inch
Machinery:	1 triple expansion. I.H.P.: 2,260=12 kts.

General

Ex-cargo vessel. Built at Astilleros Echevarrieta, Cadiz. Commissioned 4 Oct. 1954.

TA II (ex-U.S.S. Noble, APA 218)

Displacement:	6,720 tons light (12,450 tons full load)
Dimensions:	436½ (w.l.), 455 (o.a.)×62×24 (max.) feet
Machinery:	Geared turbines. S.H.P.: 8,500=17 kts.
Boilers:	2 Babcock & Wilcox

General

Former U.S. Attack Transport, transferred to Spain under MAP at San Francisco on 19 Dec. 1964.

TA 21 (ex-U.S.S. Achernar, AKA 53)

Displacement:	7,430 tons light (12,800 tons full load)
Dimensions:	435 (w.l.), 459½ (o.a.)×63×24 (max.) feet
Machinery:	Geared turbines. S.H.P.: 6,000=16 kts.
Boilers:	2 Foster-Wheeler

General

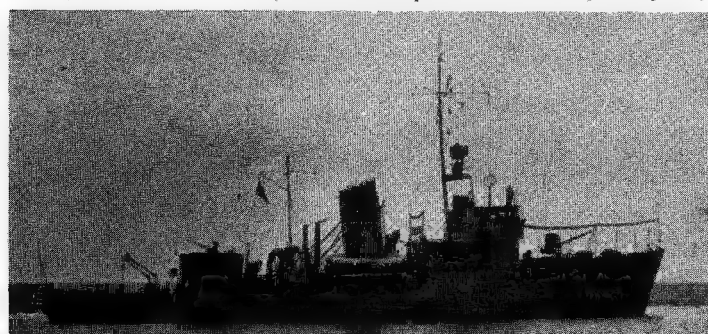
Former U.S. Attack Cargo Ship, transferred under MAP at New York on 2 Feb. 1965.

PATROL VESSELS (*Guardacostas*)**CENTINELA**

Displacement:	270 tons
Dimensions:	119×22½×9½ feet
Guns:	1—37 mm
Machinery:	B.H.P.: 450=12 kts.

General

Completed at Ferrol, in 1953, Rated as Fishery Protection Vessels (*Guardapescas*).

SERVIOIA

PEGASO

1961, Spanish Navy, Official

PEGASO

Displacement:	437 tons standard (503 tons full load)
Dimensions:	137½×27×9½ feet
Guns:	1—3 inch AA, 2—20 mm. AA.
Machinery:	Diesels, 1 shaft. B.H.P.: 530=12 kts
Oil fuel:	66 tons
Radius:	3,500 miles at 9 kts.
General Complement:	37

General

Both commissioned at Cartagena in Jan. 1951. Rated as Coastguard Vessels (*Guardacostas*). Photograph of *Procyon* in the 9151-52 to 1960-61 editions.

CIES

Displacement:	180 tons
Dimensions:	105×20½×8½ feet
Guns:	1—37 mm.
Machinery:	B.H.P.: 300=12 kts.

General

Purchased in Dec. 1952. Rated as Fishery Protection Vessels (*Guardapescas*).

ARCILA (ex-William Doak)

Displacement:	750 tons
Dimensions:	138½ (pp.), 148 (o.a.)×23½×15½ (Xauen, 17) feet
Guns:	2—3 inch (Xaen, 1—3 inch, 1—47 mm. AA.)
Machinery:	I.H.P.: 500=10 kts.
Coal:	200 tons
General Complement:	39

General

"Mersey" type trawlers. Launched in 1918 by Goole S.B. & Rep. Co., and Lobnitz. *Arcila* is rated as a *guardcosta* and *Xauen* as an *oceanographico*.

AZOR

Displacement:	375 tons
Machinery:	Speed=12 kts.

General

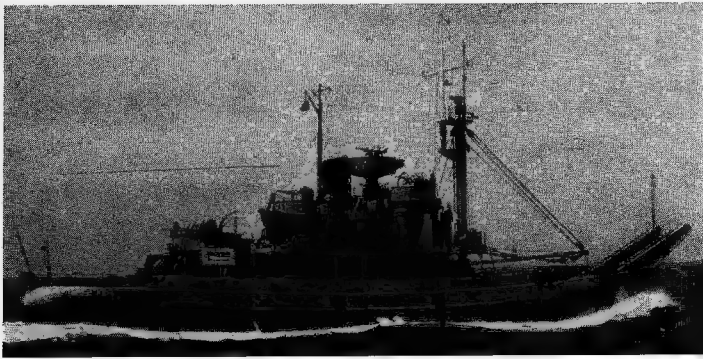
Rated as a Fishery Protection Launch (*Lancha Guardapescas*). Used as the Caudillo's yacht.

UAD KERT (ex-Rother, ex-Anthony Aslett)

Displacement:	640 tons
Dimensions:	130 (pp.), 130½×23½×15½ feet
Guns:	2—3 inch
Machinery:	I.H.P.: 500=9.5 kts.
Coal:	200 tons
General Complement:	39

General

Built by Cochrane & Sons Ltd., Selby; Launched in 1917. "Special" type trawler.

BOOM DEFENCE VESSEL (Cala-Redes)

CR 1 1963, Spanish Navy, Official

CR 1 (ex-G 6)
 Displacement: 560 tons standard (770 tons full load)
 Dimensions: 149½×33½×10½ feet
 Guns: 1—40 mm. AA., 1—20 mm. AA.
 Machinery: 2 diesels with electric drive, B.H.P.: 1,600=12 kts.
General
 Built by Penhoët, France, as a U.S. off-shore order. Launched on 28 Sep. 1954. Transferred from the U.S. in 1955 under the Mutual Defense Assistance Programme.

OILERS

TEIDE 1963, Spanish Navy, Official

TEIDE
 Displacement: 7,205 tons
 Dimensions: 385½×48½×20½ feet
 Guns: 1—4 inch
 Machinery: 2 diesels, B.H.P.: 2,800=12 kts.
Construction
 Ordered from Factoria de Bazan, Cartagena, in December 1952. Laid down on 11 Nov. 1954. Launched on 20 June 1955. In service October 1956.
PLUTON (ex-Campilo)
 Displacement: 4,550 tons (in light condition)
 Dimensions: 342½×53½×19½ feet
 Machinery: 2 sets B. & W. diesels, B.H.P. 2,530=13½ kts.
General
 Built at Valencia. Diesels built at Barcelona. Launched in 1931. Purchased in Dec. 1934. A photograph appears in the 1954-55 to 1961-62 editions.

PP 1 Displacement: 470 tons
 Dimensions: 138 (pp.), 147½ (o.a.)×25×9½ feet
 Machinery: Deutz diesel, B.H.P.: 220=10 kts.
 Complement: 12
General
 Both built at Santander and launched in 1939. Small service tankers.

COASTAL LAUNCHES (Lanchas de Vigilancia)

V 2	Displacement: 22 tons.	Guns: 1—7 mm.	Speed: 6·7 kts.
V 3	Displacement: 10 tons.	Guns: 1—7 mm.	Speed: 7·5 kts.
V 4	Displacement: 65 tons.	Guns: 1—7 mm.	Speed: 9 kts.
V 5	Displacement: 4·5 tons.	Guns: 1—7 mm.	Speed: 5 kts.
V 7	Displacement: 20 tons.	Guns: 1—7 mm.	Speed: 8·5 kts.
V 8	Displacement: 26·5 tons.	Guns: 1—7 mm.	Speed: 7·8 kts.
V 9	Displacement: 15·6 tons.	Guns: 1—7 mm.	Speed: 9 kts.
V 10	Displacement: 11·69 tons.	Guns: 1—7 mm.	Speed: 9·5 kts.
V 11	Displacement: 11·69 tons.	Guns: 1—7 mm.	Speed: 7·8 kts.
V 12	Displacement: 28 tons.	Guns: 1—7 mm.	Speed: 7·8 kts.
V 13	Displacement: 45·1 tons.	Guns: 1—13 mm.	Speed: 10·5 kts.
V 17	Displacement: 110·9 tons.	Guns: 1—13 mm.	Speed: 6 kts.
V 18	Displacement: 116 tons.	Guns: 1—13 mm.	Speed: 17·6 kts.
V 21	Displacement: 16 tons.	Guns: 1—13 mm.	

General
 There are also V 1 and V 6. Coastal launches employed on surveillance and fishery protection duties, lanchas guardapescas, except V 17, rated as patrullero. V 4 is named Alcatraz, V 12 Esturion and V 18 Lanzon V 19 was officially stricken from the list in 1963, and V 20 in 1965.

AUXILIARY PATROL VESSELS

RR 10	RR 19	RR 20	RR 28
Displacement: 454 tons	Displacement: 124×27½×10 feet		
Dimensions: 1—47 mm., 1—20 mm. AA.	Guns: 1 shaft, I.H.P.: 800=11·5 kts.		
Machinery: 200 tons			
Coal: 1,000 miles at 10 kts.			
Radius:			

General
 Former tugs. All launched in 1941-42. Now patrol vessels. A photograph appears in the 1957-58 edition.

TRAINING SHIP (Buque-Escuela)**IUAN SEBASTIAN DE ELCANO**

Displacement: 3,420 tons (at three-quarters load)
 Dimensions: 269½ (pp.), 308½ (o.a.)×43×23 feet (full load)
 Guns: 4—6 pdr.
 Machinery: 1 Sulzer diesel motor, 1 screw, B.H.P.: 800=9·5 kts.
 Oil fuel: 230 tons
 Endurance: 10,000 miles at 9·5 kts.
 Complement: 224+80 Cadets

General
 Four-masted schooner. Named after the first circumnavigator of the world (1519-26) who succeeded to the command of the expedition led by Magallanes after the latter's death. Built by Echevarrieta Yard, Cadiz. Launched on 5 Mar. 1927. Completed in 1928. A photograph appears in the 1952-53 to 1957-58 editions.
Disposal
 The training ship (Galatea (ex-Clarastella), latterly used as a store ship, was removed from the list in 1961.

TUGS (Remolcadores)

RR 50	RR 51	RR 52
<i>New Construction</i>		
It is officially stated that these tugs are being built at Bazzan Shipyard, Cartagena.		
RA 4	RA 5	RA 6
Displacement: 1,050 tons		
Dimensions: 183½×32½×15½ feet		
Machinery: 2 diesel motors, B.H.P.: 3,200=15 kts.		

Construction
 All built at Bazan Shipyard, La Carraca, in 1963.

RA 1	RA 2
Displacement: 934 tons	
Dimensions: 184×32½×12 (max.) feet	
Guns: 1—37 mm.	
Machinery: 2 diesels, B.H.P.: 3,200=15 kts.	

General
 Ordered in 1949. Built at Factoria de Bazan, Cartagena. Launched on 2 Sep. 1954 and 5 Oct. 1954, commissioned on 9 July 1955 and 12 Sep. 1955, respectively.

RS 3 (ex-Metinda III)
 Displacement: 762 tons standard (1,080 tons full load)
 Dimensions: 137×33½×15½ feet
 Machinery: Triple expansion, 12 kts. (max.) 10 kts. (service)
General
 Purchased in Great Britain. RA 3 (ex-Argos), was deleted from the list in 1962.

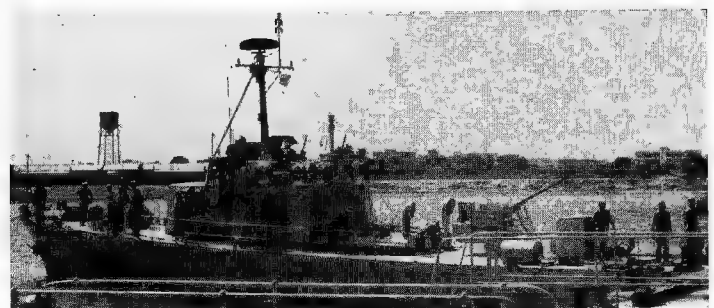
RR 15	RR 16	RR 17
Displacement: 434 tons		
Dimensions: 124×27½×10 feet		
Machinery: I.H.P.: 800=11·5 kts.		
RR 11		
Displacement: 279 tons		
Dimensions: 111½×20×—feet		
Machinery: I.H.P.: 600=11 kts.		

Disposals
 RR 14 (ex-Gaditano, ex-HS 82) was removed from the effective list in 1963.

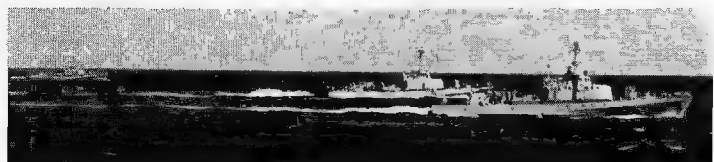
SUDAN

It is officially stated that Sudan is planning to increase and equip the new Navy, established in 1962, to guard the coast of the Red Sea.

Naval, Military and Air Attaché in London:
 Colonel S. G. Muzzamil.

PATROL BOATS

PB 1 1962, Sudan Navy, Official



PB 2, PB 3, PB 4 1962, Sudan Navy, Official

GIHAD	HORRIYA	ISTIGLAL	SHAAB
Displacement: 100 tons			
Dimensions: 115×16½×5½ feet			
Guns: 1—40 mm. AA., 1—20 mm. AA., 2—7·6 mm. M.G.			
Machinery: Mercedes Benz diesels, 2 shafts, B.H.P.: 1,800=20 kts.			
Radius: 1,400 miles			
Complement: 20 officers and men.			

General
 Built by Mosor Shipyard, Trogir, Yugoslavia, in 1961-62. Of steel construction. First craft acquired by the newly established Sudanese Navy.

ROYAL SWEDISH NAVY

Administration

Commander-in-Chief of the Navy (including Coast Artillery):
Vice-Admiral A. F. Lindemalm.

President of the Navy Technical and Administrative Board:
Rear-Admiral A. H. S. Lagerman.

Commander-in-Chief of Active Fleet:
Rear-Admiral E. Blidberg.

Naval Attaché in London:
Commodore Ulf Reinius.

Naval Attaché in Washington:
Commodore Anders G. Nilson.

New Construction Programme

Plan "ÖB-62" comprises:—
2 Guided Missile Frigates (ship-to-air)
10 Submarines
12 Motor Torpedo Boats (T 121 type)
20 Motor Gunboats
9 Coastal Minesweepers (M 69 type)

Personnel

1965: Active List of Navy and Coast Artillery,
15,200 officers and men, including conscripts.

Navy Estimates

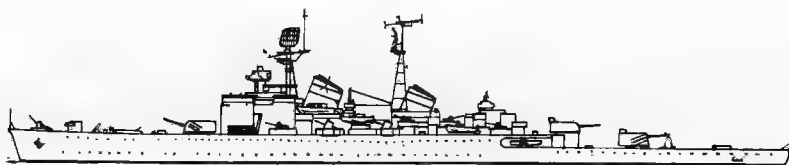
1960-61: 389,500,000 kr. 1962-63: 423,000,000 kr.
1961-62: 409,000,000 kr. 1963-64: 469,000,000 kr.
1964-65: 490,250,000 kr.

Mercantile Marine

Lloyd's Register of Shipping:
1,167 vessels of 4,308,042 tons gross

Silhouettes

Scale: 150 feet=1 inch.



GÖTA LEJON



ÖSTERGÖTLAND Class



HALLAND Class



ÖLAND



VISBY Class



MALMÖ



UPPLAND



GÄVLE



MJÖLNER Class



KALMAR

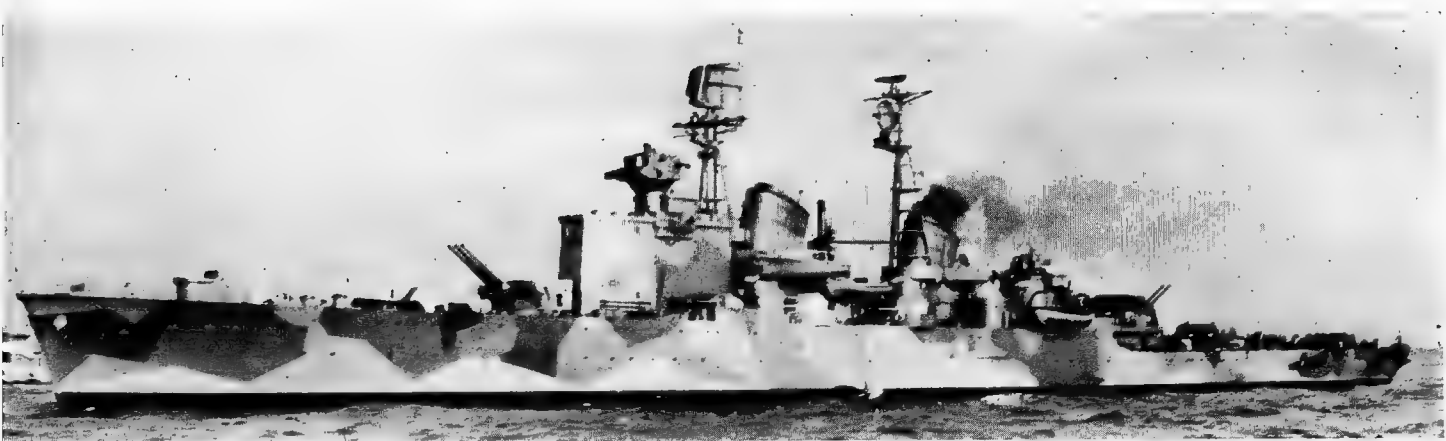


NORRKÖPING



ÄLVSNABBEN

CRUISERS (Kryssare)



GÖTA LEJON

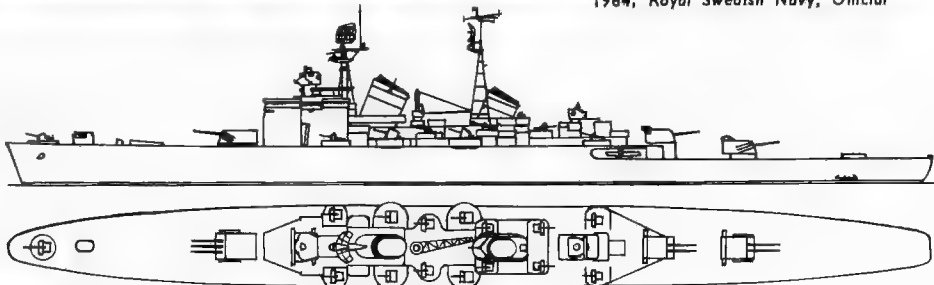
1964, Royal Swedish Navy, Official

I "Tre Kronor" Class

GÖTA LEJON

Builders: Eriksberg Mekaniska Verkstad, Göteborg
Laid down: 27 Sep. 1943
Launched: 17 Nov. 1945
Completed: 15 Dec. 1947

Displacement: 8,200 tons standard designed (9,200 tons full load)
Dimensions: Length: 571 (pp.), 590½ (w.l.), 597 (o.a.) feet. Beam: 54 feet. Draught: 19½ (mean), 21½ (max.) feet
Guns: 7—6 inch, 53 cal. Bofors AA., 4—57 mm. Bofors AA., 11—40 mm. Bofors AA.
Tubes: 6—21 inch D.C.T.
Armour: Exceptionally strong, 3"-5" side
Machinery: 2 sets De Laval geared turbines. 2 shafts. S.H.P.: 100,000=33 kts.
Boilers: 4 Swedish 4-drum type
Complement: 610



General
Cost was estimated at 74,000,000 kronor. Radar control arrangements were installed for 6-inch guns. Fitted for minelaying with a capacity of 120 mines. Reconstructed in 1951-52. Modernised in 1958, with new radar, 57 mm. guns, etc.
Gunnery
The 6-inch guns are high angle automatic anti-aircraft weapons with an elevation of 70 degrees. The 9—25 mm. AA. formerly mounted were suppressed in 1951 and 7—40 mm. AA. added.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.
Appearance
Light tripod masts have been stepped as shown in photo. Enclosed tower bridge structure.
Disposals
Sister ship Tre Kronor was discarded on 1 Jan. 1964, it is officially stated.
The old anti-aircraft cruiser Gotland was sold in 1961.

DESTROYERS (Jagare)



ÖSTERGÖTLAND

Added 1962, Wright & Logan

4 "Östergötland" Class

Displacement: 2,150 tons standard (2,600 tons full load)
Dimensions: 367½ (pp.), 380 (o.a.)×36½×12 feet
Guns: 4—4.7 inch, Östergötland 7—40 mm. AA. Hälsingland 5—40 mm. AA., others 4—40 mm. AA.
Guided weapons: Gästrikland and Södermanland have "Seacat"
Tubes: 6—21 inch
A/S weapons: Triple-barrelled depth charge mortar
Mines: 60 (capacity) can be carried
Machinery: De Laval turbines: 2 shafts. S.H.P.: 40,000=35 kts.
Boilers: 2 Babcock & Wilcox
Oil fuel: 330 tons
Radius: 2,200 miles at 20 kts.
Complement: 244

General
These ships have improved anti-aircraft defence and anti-submarine weapons of the Bofors type. Södermanland was modernised in 1962, and Gästrikland and Östergötland in 1963.
See officially revised completion dates above.

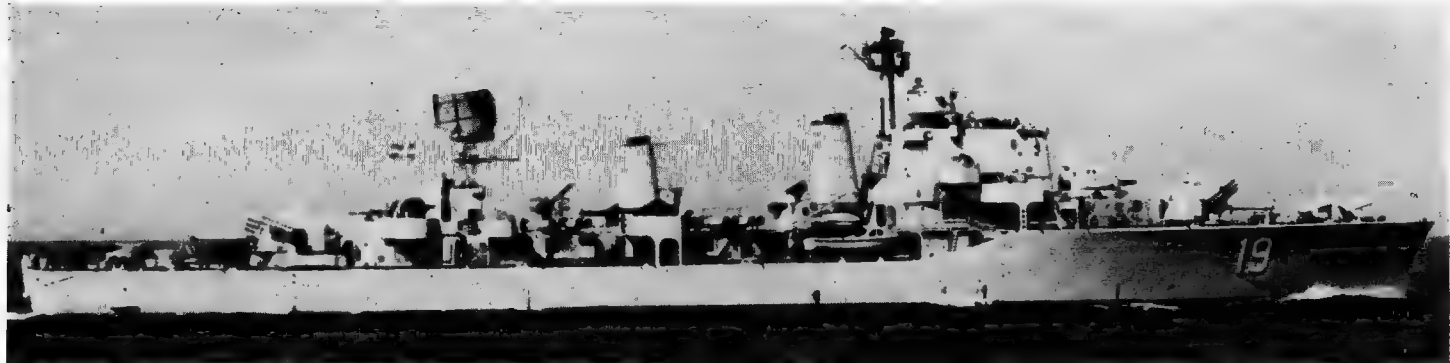
Photographs
Photographs appear of Södermanland in the 1958-59 edition, and of Gästrikland in the 1959-60 to 1964-65 editions.

Name	No.:	Builders	Laid down	Launched	Completed
GÄSTRIKLAND	22	Götaverken, Göteborg	1 Oct. 1955	6 June 1956	14 Jan. 1959
HÄLSINGLAND	23	Kockums Mek. Verkstads A/B	1 Oct. 1959	14 Jan. 1957	17 June 1959
ÖSTERGÖTLAND	20	Götaverken, Göteborg	1 Sep. 1955	8 May 1956	3 Mar. 1958
SÖDERMANLAND	21	Eriksberg Mekaniska Verkstad	1 June 1955	28 May 1956	27 June 1959



HÄLSINGLAND

1965, Royal Swedish Navy, Official



SMÅLAND

1963, Royal Swedish Navy, Official

2 "Halland" Class

HALLAND	SMÅLAND	
Name	Halland	Småland
Pennant No.:	18	19
Builders:	Götaaverken, Göteborg	Eriksberg Mekaniska Verkstad, Göteborg
Ordered:	1948	1948
Laid down:	1951	1951
Launched:	16 July 1952	23 Oct. 1952
Completed:	8 June 1955	12 Jan. 1956
Displacement:	2,650 tons standard (3,200 tons full load)	
Dimensions:	380½ (w.l.), 397½ (o.a.)×41×14½ feet	
Guns:	4—4.7 inch AA., 2—57 mm. AA., 6—40 mm. AA.	
Tubes:	8—21 inch.	
Guided weapons:	1 rocket launcher	
A/S weapons:	2 four-barrelled depth charge mortars	
Mines:	Can be fitted for minelaying	
Machinery:	De Laval double reduction geared turbines. 2 shafts. S.H.P.: 58,000=35 kts.	
Boilers:	3	
Oil fuel:	500 tons	
Radius:	3,000 miles at 20 kts.	
Complement:	290	

General
The first Swedish destroyers of post-war design and construction. These large destroyers have fully automatic



HALLAND

1965, Royal Swedish Navy, Official

gun turrets and ahead throwing anti-submarine weapons of the Bofors type, forward. It is officially stated that they will be equipped with ship-to-ship guided missiles.

Cancellation
Two sister ships, to have been named *Lappland* and *Värmland*, were cancelled in 1958.

2 "Öland" Class

ÖLAND	UPPLAND	
Name:	Öland	Uppland
Pennant No.:	16	17
Builders:	Kockums Mek. Verkstads A/B., Malmö	Karlskrona Dock-yard
Laid down:	1943	1943
Launched:	15 Dec. 1945	5 Nov. 1946
Completed:	5 Dec. 1947	31 Jan. 1949
Modernised:	1960	1963
Displacement:	1,990 tons standard (2,400 tons full load)	
Dimensions:	351 (pp.), 364½ (o.a.)×36½×11½ feet	
Guns:	4—4.7 inch (d.p.), 6—40 mm. AA., 8—20 mm. AA.	
Tubes:	6—21 inch (tripled)	
Mines:	60	
Machinery:	De Laval geared turbines. 2 shafts. S.H.P.: 44,000=35 kts.	
Boilers:	2 Penhoët	
Oil fuel:	300 tons	
Radius:	2,500 miles at 20 kts.	
Complement:	210	

General
The superstructure and machinery spaces are lightly armoured. Fitted for minelaying.

Gunnery
The 4.7 inch guns are semi-automatic with an elevation of 80 degrees. The 40 mm. AA. gun near the jack-staff was removed in 1962.

Reconstruction
Öland was modernised in 1959 with a new bridge, see photograph above showing her appearance after reconstruction. *Uppland* was modernised with a new bridge and a helicopter platform in 1963, see new photograph above.

Photographs
Another photograph of *Uppland*, a port near broad-side view before reconstruction, appears in the 1955-56 to 1961-62 editions.



UPPLAND

1965, Royal Swedish Navy, Official



ÖLAND

Added 1962, Wright & Logan

FAST ANTI-SUBMARINE FRIGATES (ex-Destroyers) Rated as Fregatter

4 "Visby" Class

Name	No.	Builders	Launched	Completed
HALSINGBORG	13	Götaverken	23 Mar. 1943	1943
KALMAR	14	Eriksberg	20 July 1943	1944
SUNDSVALL	12	Eriksberg	20 Oct. 1942	1943
VISBY	11	Götaverken	16 Oct. 1942	1943

Displacement: 1,150 tons standard (1,320 tons full load)
Dimensions: 310 (w.l.), 320 (o.a.)×30×12½ feet
Guns: Sundsvall and Visby: 3—4.7 inch, 3—40 mm. AA., 2—20 mm. AA.
Hälsingborg and Kalmar: 3—4.7 inch, 3—40 mm. AA.
Tubes: Sundsvall and Visby: 6—21 inch (tripled); Hälsingborg and Kalmar: 5—21 inch (quintupled)
A/S weapons: 2 D.C.T.
Machinery: De Laval geared turbine, 2 shafts, S.H.P.: 36,000=39 kts.
Boilers: 3, of 3-drum type
Oil fuel: 150 tons
Radius: 1,600 miles at 20 kts.
Complement: 140

General
Former destroyers, Kalmar was laid down on 16 Nov. 1942, and Visby on 29 Apr. 1942, All were originally fitted for minelaying.

Reclassification
Officially re-rated as frigates on 1 Jan. 1965



HALSINGBORG

1963, Royal Swedish Navy, Official



KALMAR

1962, Royal Swedish Navy, Official

Photographs
A photograph of Visby appears in the 1951-52 and 1952-53 editions and of Sundsvall in the 1953-54 to 1964-65 editions.

4 "Goteborg" Class

Name	No.	Builders	Launched	Completed
GÄVLE	80	Götaverken	25 Sep. 1940	1941
KARLSKRONA	79	Karlskrona	16 June 1939	1940
MALMÖ	78	Eriksberg	22 Sep. 1938	1939
NORRKÖPING	81	Eriksberg	5 Sep. 1940	1941

Displacement: 1,250 tons standard, 1,400 tons full load, Malmö 1,150 tons standard (1,300 tons full load)
Dimensions: 304 (w.l.), 310½ (o.a.)×29½ (Malmö 28)×12½ feet
Guns: 3—4.7 inch (Malmö 2—4.7 inch), 4—40 mm.
A/S weapons: 2 D.C.T. Gävle, Karlskrona, Malmö 2 rocket launchers
Tubes: 6—21 inch (tripled) Gävle and Karlskrona no tubes
Machinery: De Laval geared turbines, 2 shafts, S.H.P.: 32,000=39 kts.
Boilers: 3 Penhoët
Oil fuel: 150 tons
Radius: 1,200 miles at 20 kts.
Complement: 130

General
Former torpedo boat destroyers. Originally carried 20 or 60 mines. All now refitted for anti-submarine warfare, and reclassified as frigates.

Reconstruction
As converted into fast anti-submarine escorts these ships have their close range anti-aircraft guns mounted on a bandstand enveloping the after funnel, Gävle was reconstructed in 1961, Malmö in 1962, and Karlskrona in 1963.

Conversion
It was officially stated that the 'Göteborg class would not be radically rebuilt, as it was originally intended, although they have already undergone some modification, bringing them near the frigate type.

Reclassification
Officially re-rated as frigates on 1 Jan. 1961.



KARLSKRONA

1964, Royal Swedish Navy, Official



MALMÖ (as converted with only two 4.7 inch guns)

1963, Royal Swedish Navy, Official

Photographs
A port broadside view of Malmö before reconstruction appears in the 1956-57 to 1960-61 editions, a starboard bow view of Norrköping after reconstruction in the 1957-58 to 1962-63 editions, and a port broadside view of Gävle as converted to fast anti-submarine frigate in the 1959-60 to 1963-64 editions.

Disposals
Sister ship Stockholm was officially discarded on 1 Jan. 1964. Göteborg of this class was discarded in 1958.
The old destroyers Ehrenschild and Nordenschild were discarded on 1 Apr. 1963.
The older destroyer Klas Horn was discarded in 1958.

FAST ANTI-SUBMARINE FRIGATES (ex-Coastal Destroyers) Rated as Fregatter

4 "Mjölner" Class

Name	No.	Builders	Launched	Converted
MAGNE	74	Götaverken	25 Apr. 1942	1955
MODE	73	Götaverken	11 Apr. 1942	1955
MJÖLNER	76	Eriksberg	9 Apr. 1942	1956
MUNIN	75	Öresundsvarvet	27 May 1942	1955

Displacement: 760 tons standard (960 tons full)
Dimensions: 243½ (w.l.), 256 (o.a.)×26½×7½ feet
Guns: 2—4.1 inch; 2—40 mm. AA.
A/S weapons: 2 D.C.T.
Machinery: 2 De Laval geared turbines, 2 shafts, S.H.P.: 16,000=30 kts.
Boilers: 2, of 3-drum type
Oil fuel: 190 tons
Radius: 1,260 miles at 20 kts.
Complement: 100

General
All laid down in Sep. 1941 and completed in 1942. Formerly rated as seagoing torpedo boats or coastal destroyers (kustjagare). Originally fitted for mine-laying, but converted into fast anti-submarine frigates and the 3—21 inch torpedo tubes removed.



MODE

1961, Royal Swedish Navy, Official

Photographs
A port broadside view of Munin appears in the 1956-57 to 1959-60 editions, and a starboard bow view of Mjölner in the 1960-61 edition

Disposals
Two coastal destroyers Remus (ex-Astore) and Romulus (ex-Spica), former Italian oceangoing torpedo boats, were towed away for scrap in Aug. 1959.

SUBMARINES (Ubatar)

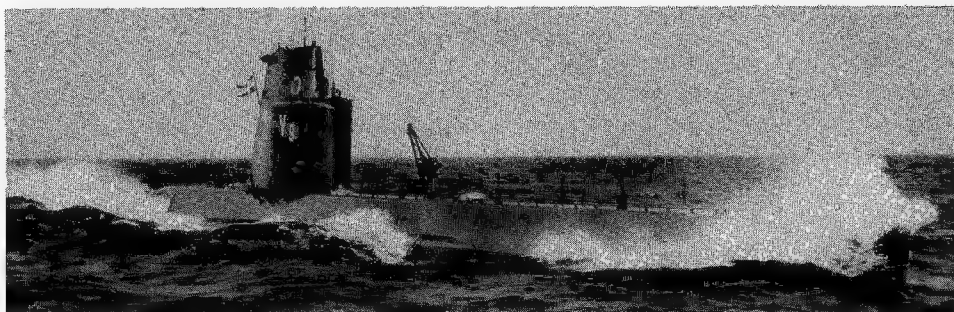
New Construction
5 "Sjöormen" Class

SJÖORMEN	SJÖBJÖRNEN SJÖHÄSTEN	SJÖHUNDEN SJÖLEJONET
Displacement:	700 tons standard, 800 tons surface; 1,100 tons submerged	
Tubes:	21 inch	
Machinery:	Diesels, Electric motors.	

General

Three building by Kockums, two by Karlskrona (now a civilian yard). *Sjöbjörnen* means Seabear, *Sjöormen* Seaserpent, *Sjöhästen* Seahorse, *Sjöhunden* Seadog, and *Sjölejonet* Sealion.

Five more submarines of a new highly streamlined, long-range type, are included in the new construction programme. They will be conventional but with engines enabling them to stay submerged for a long time.



VARGEN

1965, Royal Swedish Navy, Official

6 "Draken" Class

DELFINEN DRAKEN	GRIPEN NORDKAPAREN VARGEN	SPRINGAREN
Displacement:	770 tons standard, 835 tons surface	
Dimensions:	227½×15½×14½ feet	
Tubes:	21 inch	
Machinery:	Speed=16½ kts. surface 25 kts. submerged	

General

These six submarines have fast-diving capabilities.

Nomenclature

Draken means Dragon, *Gripen* Griffon, *Vargen* Wolf.

Appearance

Distinctive letters painted on the conning tower are: *De*, *Delfinen*; *Dk*, *Draken*; *Gr*, *Gripen*; *Nd*, *Nordkaparen*; *Sp*, *Springaren*; *Vg*, *Vargen*.

Photographs

A photograph of *Draken* appears in the 1962-63 to 1964-65 editions.

Name	Builders	Launched	Completed
<i>Delfinen</i>	Karlskrona	7 Mar. 61	7 June 62
<i>Draken</i>	Kockums, Malmö	1 Apr. 60	4 Apr. 62
<i>Gripen</i>	Karlskrona	31 May 60	28 Apr. 62
<i>Nordkaparen</i>	Kockums, Malmö	8 Mar. 61	4 Apr. 62
<i>Springaren</i>	Kockums, Malmö	31 Aug. 61	7 Nov. 62
<i>Vargen</i>	Kockums, Malmö	20 May 60	15 Nov. 61

6 "Hajen" Class

BÄVERN HAJEN	ILLERN SÄLEN	UTTERN VALEN
Displacement:	720 tons standard, 785 tons surface	
Dimensions:	216½×16½×19½ feet	
Guns:	1—20 mm. AA.	
Tubes:	4—21 inch, bow (8 torpedoes)	
Machinery:	SEMT Pielstick diesels. Electric motors	
Complement:	44	

General

All built by Kockums Mekaniska Verkstads Aktiebolag, Malmö, except *Valen* built by the Royal Swedish Naval Dockyard, Karlskrona.

Operational

Equipped with Schnorkel, and have fast-diving capabilities.

Nomenclature

Bävern means Beaver, *Hajen* Shark, *Illern* Polecat, *Sälen* Seal. *Uttern* Otter and *Valen* Whale.

Appearance

Distinctive letters painted on the conning tower are: *Bv*, *Bävern*; *Hj*, *Hajen*; *Im*, *Illern*; *Sä*, *Sälen*; *Ut*, *Uttern*; *Va*, *Valen*.

Photograph

A photograph of *Hajen* appears in the 1957-58 to 1959-60 editions.

Name	Builders	Launched	Completed
<i>Hajen</i>	Kockums	11 Dec. 1954	1956
<i>Valen</i>	Karlskrona	21 Apr. 1955	1957
<i>Sälen</i>	Kockums	3 Oct. 1955	1957
<i>Illern</i>	Kockums	14 Nov. 1957	1959
<i>Bävern</i>	Kockums	3 Feb. 1958	1959
<i>Uttern</i>	Kockums	14 Nov. 1958	1960



ILLERN

1964, Royal Swedish Navy, Official



BÄVERN

1960, Royal Swedish Navy, Official

3 "Najad" Class

NÄCKEN	NAJAD	NEPTUN
Displacement:	550 tons standard, 600 tons surface, 720 tons submerged	
Dimensions:	200×20½×11½ feet	
Tubes:	4—21 inch (3 bow, 1 stern)	
Mines:	20. Fitted for minelaying	
Machinery:	2 Diesels, 2 shafts, B.H.P.: 3,000=16 kts. surface; 2 electric motors. H.P.: 2,000=10 kts. submerged	
Complement:	32	

General

All provided under the 1938 programme. These three minelaying submarines were all built by Kockums Mekaniska Verkstads Aktiebolag, Malmö. *Näcken* means Neck, *Najad* Naiad, and *Neptun* Neptune.

Appearance

Distinctive letters painted on conning tower are: *Nä*, *Näcken*; *Nj*, *Najad*; *Np*, *Neptun*.

Photographs

A photograph of *Neptun* appears in the 1952-53 to 1959-60 editions.

Name	Laid down	Launched	Completed
<i>Näcken</i>	Nov. 1941	26 Sep. 1942	Mar. 1943
<i>Najad</i>	Feb. 1942	26 Sep. 1942	May 1943
<i>Neptun</i>	Mar. 1942	17 Nov. 1942	June 1943



NÄCKEN

1960, Royal Swedish Navy, Official

Disposals

Of the nine old submarines of the "Sjölejonet" class. *Dykaren* (Diver), *Sjöborren* (Seaurchin), *Sjöhunden* (Seadog), *Sjölejonet* (Sealion) and *Svärdfisken* (Sword-

fish) were stricken in 1960 and scrapped.

Sjöbjörnen (Seabear), *Sjöhästen* (Seahorse), *Sjöormen* (Seaserpent) and *Tumlaren* (Porpoise) were discarded on 1 Jan. 1964, it is officially stated.

Submarines—continued

6 "Abborren" Class

ABBORREN (ex-U5)	LAXEN (ex-U8)
MAKRILLEN (ex-U9)	GÄDDAN (ex-U7)
FORELLEN (ex-U4)	SKIEN (ex-U6)
Displacement:	388 tons standard, 430 tons surface, 460 tons submerged
Dimensions:	164×17½×17½ feet
Tubes:	4—21 inch (3 bow, 1 stern)
Machinery:	2 MAN diesels. B.H.P.: 1,500=14 kts. surface. Electric motor. H.P.: 750=9 kts. submerged
Complement:	23

General
All were built by Kockums Mek. Verkstads, Malmö (U 4, 5 June 1943, U 5, 8 July 1963, U 6, 18 Aug. 1943, U 7, 23 Nov. 1943), and by Karlskrona Naval Dockyard (U 8, 25 Apr. 1944, U 9, 23 May 1944) (original launch dates). Reconstructed in 1960-64. Launching dates after reconstruction: Abborren 1962,



LAXEN

1965, Royal Swedish Navy, Official

Disposals
Makrillen 1963, Forellen 1963, Laxen 1964, Gaddan 1963, Siken 1964. All have been streamlined. Officially rated as kustubåtar (coastal submarines). Of three sister boats, U 1 was scrapped in 1961, U 2 was for sale in 1962, and U 3 in 1964.

I Ex-British "Midget" Type

SPIGGEN (ex-Stickleback, X 51)	
Displacement:	36 tons surface, 41 tons submerged
Dimensions:	50½ (pp.), 53½ (o.a.) 6½×7½ feet
Machinery:	Perkins 6-cyl diesels. 7 kts. surface. Electric motors 6 kts. submerged
Complement:	5

General
Former British X-craft. Built by Vickers-Armstrongs Ltd., Barrow. Launched on 1 Oct. 1954. Refitted in 1957-58. Purchased by the Swedish Government. Transferred from Great Britain to Sweden on 15 July 1958. "Spiggen" is actually the Swedish equivalent of "Stickleback".



SPIGGEN

1960, Royal Swedish Navy, Official

MINELAYER (Minfartyg) Cadets' Seagoing Training Ship

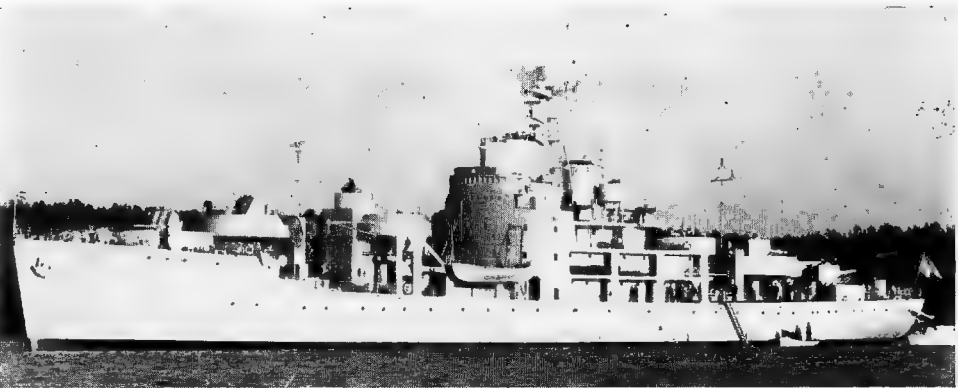
ÄLVSNABBEN

Builders:	Eriksberg Mekaniska Verkstand, Göteborg
Laid down:	Oct. 1942
Launched:	19 Jan. 1943
Completed:	Apr. 1943
Displacement:	4,250 tons standard
Dimensions:	317½ (w.l.), 334½ (o.a.)×44½×16 feet
Guns:	2—6 inch, 2—57 mm. AA. Bofors, 2—40 mm. AA. Bofors
Machinery:	Diesels. 1 shaft. Speed 14 kts.
Complement:	255

General
Completed on a mercantile hull in Apr. 1943. Can be used as Submarine Parent Ship or Minesweeper Depot Ship. Employed as a training ship during 1953-58, and relieved the anti-aircraft cruiser Gotland as Cadet's Seagoing Training Ship in 1959.

Rearmament
Re-armed in 1961. Formerly carried 4—6 inch, 8—40 mm. AA., 6—20 mm. AA.

Disposal
The old minelayer *Clas Fleming* was officially discarded in 1959.



ÄLVSNABBEN (as rearmed)

1962, Royal Swedish Navy, Official

Cancellation
In 1958 the construction of a new minelayer, to have 5—57 mm. AA.; Mines: 250; Speed 20 kts.) to replace been named *Älvsborg* (Displacement 2,000 tons; Guns: the old *Clas Fleming* was cancelled.

SUBMARINE DEPOT SHIP (Ubåts depåfartyg)

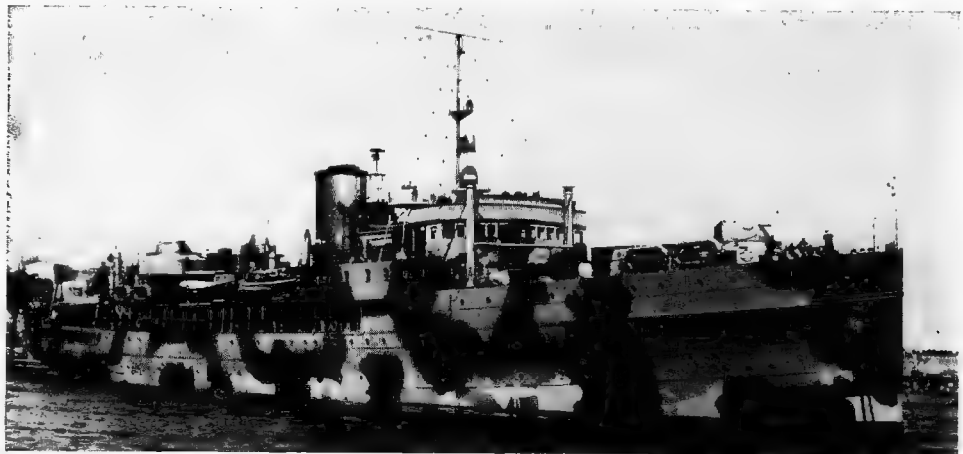
I Mercantile Type

PATRICIA (ex-Patris II)	
Builders:	Swan, Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne
Launched:	1926
Completed:	1926

Displacement:	4,950 tons standard
Dimensions:	335×47½×20 feet
Guns:	8—40 mm. AA., 2—20 mm. AA.
Machinery:	Triple expansion. 2 shafts. I.H.P. 2,900=15 kts.
Boilers:	2 oil fired
Complement:	500 (accommodation for)

General
Acquired in 1940. She was reconstructed to increase the accommodation for about 500 men and to maintain and administer nine submarines.

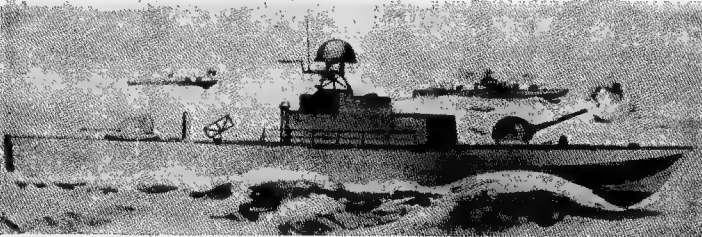
Disposal
The radar training ship *Prins Carl* (ex-Munin) was discarded in 1960.



PATRICIA

Added 1962, Royal Swedish Navy, Official

MOTOR GUNBOATS (Motorkanonbåtar)



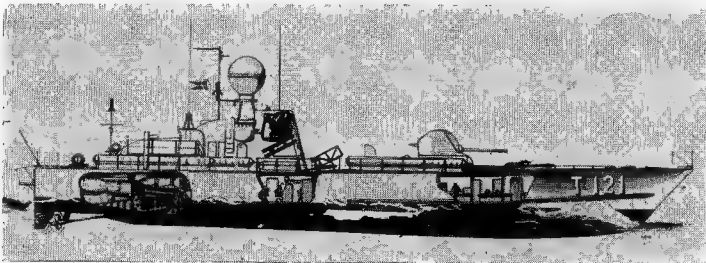
NEW MBG 1965, Royal Swedish Navy, Official

20 New Construction

Displacement: 120 tons standard (170 tons full load)
Guns: 1—3 inch (75 mm.), 1—40 mm.
Guided weapons: Light rocket launchers
Machinery: Speed=25 kts.

General
Heavily armed patrol craft of the gunboat type (kanonbåt) being built under the new programme, for use in narrow waters. Robust and seaworthy. Radar directed fire control, minelaying facilities, and propensity for anti-submarine operations.

MOTOR TORPEDO BOATS (Motortorpedbatar)



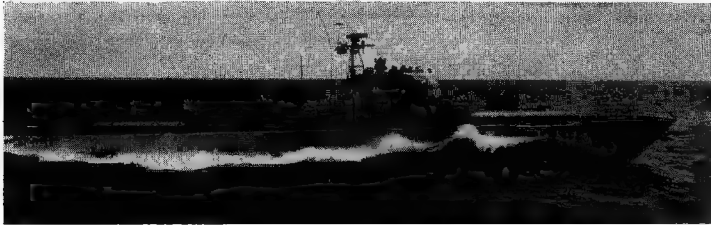
MTB T 121 1965, Royal Swedish Navy, Official

12 New Construction, Heavy Type

T 121	T 123	T 125	T 127	T 129	T 131
T 122	T 124	T 126	T 128	T 130	T 132

Displacement: 200 tons
Guns: 1—57 mm.
Tubes: 6—21 inch
Guided weapons: Light rocket launchers
Machinery: Speed=40 kts.

General
Sweden is planning six new motor torpedo boats faster and larger than earlier types, and six more will follow. A Proteus gas turbine of 4,250 S.H.P. has been ordered from British Siddeley Engines.



POLARIS 1965, Royal Swedish Navy, Official

12 M.T.B.—M.G.B. Convertibles

ALDEBARAN (T 107)	ARGO (T 111)	POLARIS (T 103)
ALTAIR (T 108)	ASTREA (T 112)	POLLUX (T 104)
ANTARES (T 109)	PERSEUS (T 101)	REGULUS (T 105)
ARCTURUS (T 110)	PLEJAD (T 102)	RIGEL (T 106)

Displacement: 155 tons (Perseus 145 tons) standard (170 tons full load)
Dimensions: 157½×18½ feet (Perseus 147½×19 feet)
Guns: 2—40 mm Bofors AA.
Tubes: 6—21 inch (2 forward, 4 aft), Perseus 4—21 inch
Machinery: 3 Daimler-Benz diesels, 3 shafts, B.H.P.: 7,800=37.5 kts. (Perseus 37 kts.)
Range: 600 miles at 30 kts.
Complement: 33

General
Perseus, built at Karlskrona, was launched in 1950, and completed in 1951, the first of a new convertible type of motor torpedo boat and motor gunboat of experimental design, re-engined with Götaaverken machinery to give much greater power. She differs slightly in appearance from the other boats of this group, but her funnel has been removed. The remaining eleven, built at Lurssen, Vegesack, were launched between 1954 and 1959 and all completed by 1960.

Photographs
Photographs of Perseus appear in the 1951-52 to 1953-54 editions, of Plejad in the 1954-55 to 1964-65 editions, of Plejad emerging from camouflaged nuclear bomb-proof shelter in the 1962-63 to 1964-65 editions, and of Antares in the 1960-61 to 1964-65 editions.

Motor Torpedo Boats—continued



T 56 1964, Royal Swedish Navy, Official

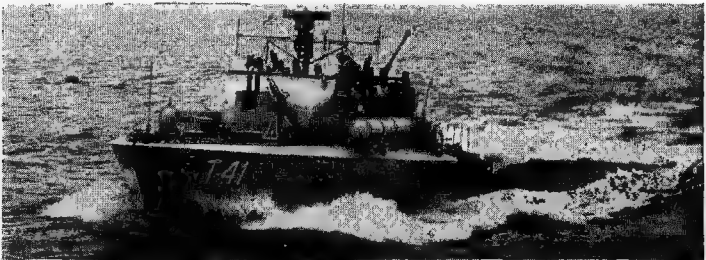
15 "T 42" Type

T 42	T 45	T 48	T 51	T 54
T 43	T 46	T 49	T 52	T 55
T 44	T 47	T 50	T 53	T 56

Displacement: 40 tons standard
Dimensions: 75½×17×5 feet
Guns: 1—40 mm. Bofors AA.
Tubes: 2—21 inch
Machinery: Diesels. Speed=40 kts.

General
Built by Kockums Mekaniska Verkstads Aktiebolag, Malmö. All launched between 1956 and 1959 and completed by 1960.

Photographs
A photograph of T 42 appears in the 1957-58 to 1963-64 editions



T 41 1961, Royal Swedish Navy, Official

I Early Type "T 42"

T 41

Displacement: 45 tons standard
Dimensions: 75½×18½×6 feet
Guns: 1—40 mm. Bofors AA.
Tubes: 2—21 inch
Machinery: Diesels. Speed=40 kts.

General
Provided under the 1952 Programme. Built by Kockums Mekaniska Verkstads Aktiebolag, Malmö. Launched and completed in 1952.



T 40 1963, Royal Swedish Navy, Official

9 Medium Type

T 32	T 34	T 36	T 38	T 40
T 33	T 35	T 37	T 39	

Displacement: 40 tons standard
Dimensions: 76×17×4½ feet
Guns: 1—40 mm. Bofors AA., 2 M.G.
Tubes: 2—21 inch
Machinery: Diesels. Speed=45 kts.

General
Launched in 1951-52. Of improved T 31 design. Built by Kockums Mekaniska Verkstads Aktiebolag, Malmö. Of all welded steel construction.

Photographs
A photograph of T 38 appears in the 1953-54 to 1962-63 editions.

Disposals
Of the small type of motor torpedo boats, T 21, T 22, T 23, T 24, T 25, T 26 and T 27 were scrapped in 1959, and T 28, T 29, T 30 and T 31 were scrapped in 1960. The older motor torpedo boats, T 15, T 16, T 17 and T 18 were discarded in 1957.

COASTAL MINESWEEPERS



ARKÖ 1959, Royal Swedish Navy, Official

12 "Arko" Class

ARKÖ (M 57)	HASSLÖ (M 64)	NÄMDÖ (M 67)	STYRSÖ (M 61)
ASPÖ (M 63)	IGGÖ (M 60)	SKAFTÖ (M 62)	VÄLLÖ (M 66)
BLIDÖ (M 68)	KARLSÖ (M 59)	SPARÖ (M 58)	VINÖ (M 65)

Displacement: 300 tons standard
Dimensions: 131 (pp.), 144½ (o.a.)×23×8 feet
Guns: 2—40 mm. AA.
Machinery: Mercedes-Benz diesels. 2 shafts. B.H.P.: 2,000=14.5 kts.

Construction
Of wooden construction. Basically similar to the "Hano" class below. There is a small difference in the deck-line between M 57-59 and M 60-68. Arkö was launched on 21 Jan. 1957. Arkö, Karlsö and Spårö were completed in 1957, Iggö in 1960, Skaftö in 1961. Aspö, Håslö, Vinö and Styrsö in 1962, Vällö in 1963, and Blidö and Nämö in 1964. Six more are in the new construction programme.



ORNÖ 1963, Royal Swedish Navy, Official

6 "Hano" Class

HANÖ (M 51)	STURKÖ (M 54)	TJURKÖ (M 53)
ORNÖ (M 55)	TARNÖ (M 52)	UTÖ (M 56)

Displacement: 270 tons standard
Dimensions: 131½×23×8 feet
Guns: 2—40 mm. AA.
Machinery: Diesels. 2 shafts. B.H.P.: 2,400=14.5 kts.

Construction
All the minesweepers of this class were built at Karlskrona and launched in 1953-54.

MINING TENDERS (Minutlaggare)



MUL 15 1963, Royal Swedish Navy, Official

MUL 12 (1952)	MUL 14 (1953)	MUL 16 (1956)	MUL 18 (1956)
MUL 13 (1952)	MUL 15 (1953)	MUL 17 (1956)	MUL 19 (1956)

Displacement: 245 tons standard
Dimensions: 102½×25×10½ feet
Guns: 1—40 mm.
Machinery: 1 Diesel-electric. B.H.P.: 360=10.5 kts.

General
Launch dates above. Completed in 1957. All of similar appearance to MUL 15, see above. A photograph of MUL 12 appears in the 1956-57 to 1962-63 editions.

MUL 11 (1946)
Displacement: 175 tons standard
Dimensions: 98½×23½×11 feet
Guns: 2—20 mm.
Machinery: 2 diesels. Speed: 10 kts.

MUL 10 (1939)
Displacement: 158 tons standard
Dimensions: 90×18½×7½ feet
Guns: 2 M.G.
Machinery: Diesel. Speed 9.5 kts.

General
Launch dates above. Manned by Coastal Artillery personnel. MUL 7 was discarded in 1954, MUL 8 in 1955. MUL 3 and MUL 9 in 1956.

MINESWEEPERS



RAMSKÄR 1963, Royal Swedish Navy, Official

6 "Bredskär" Class

2 Eriksberg	2 Lindholmen	1 Oskarshamn
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BREDSKÄR 59 (12 Dec. 40) ÖRSKÄR 62 (31 Mar. 41) ULVÖN 58 (29 Apr. 41)
BREMÖN 55 (18 June 40) RAMSKÄR 61 (28 Oct. 40)

1 Öresundsvaret
KULLEN 64 (29 Oct. 40)

Displacement: 450 tons standard (530 tons full load)
Dimensions: 180 (pp.), 187 (o.a.)×25×8 feet
Guns: 1—4.1 inch, 1—40 mm. AA., 1 M.G.
Machinery: De Laval geared turbines. S.H.P.: 3,200=17 kts.
Boilers: 2 Vansön
Oil fuel: 70 tons
Complement: 37

General
All completed in 1940-41. Builders and launch dates above. Pennant numbers are shown after names. Fitted for minelaying. The after deckhouse was removed in 1962.

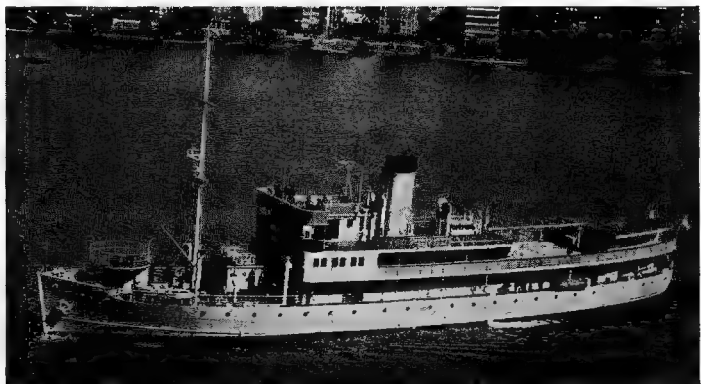
Photographs
A photograph of Bremön appears in the 1957-58 to 1962-63 editions.

Disposals
Of the "Bredskär" class, Ven was scrapped in 1960, Grönskär was officially removed from the effective list on 1 Apr. 1963, and Halmön Koster, Sandön and Vingo were officially discarded on 1 Jan. 1964.

Of the "Arholma" class, Arholma was scrapped in 1959 and Landsort was officially discarded on 1 Jan. 1964.

Of the four old minesweepers of the "Jägaren" class, Snapphanen was transferred to the new Guatemalan Navy in 1959, and Jögaren, Kaparen and Vaktaren were scrapped in 1958.

STAFF SHIP (Skrabsfartyg)



MARIEHOLM (after conversion with helicopter platform) 1959, Photo A. Kull

MARIEHOLM

Displacement: 1,445 tons standard
Dimensions: 210×32½×14 feet
Guns: 2 M.G.
Machinery: speed: 12 kts.

General
Former passenger ship. Completed in 1934. Converted during the Second World War to serve as a Base Communication Centre for the Commander-in-Chief of the Active Fleet. Recently used as a Staff Ship for the Commander-in-Chief in winter time, flying his flag. The ship had her mainmast removed and a helicopter platform installed aft in 1959 for employment as flagship of the Active Fleet (the "Coast Fleet"). The 40 mm. Bofors on the forecassle has been landed for the time being.

PATROL VESSEL (Trawler Type)

1 "Granat" Class

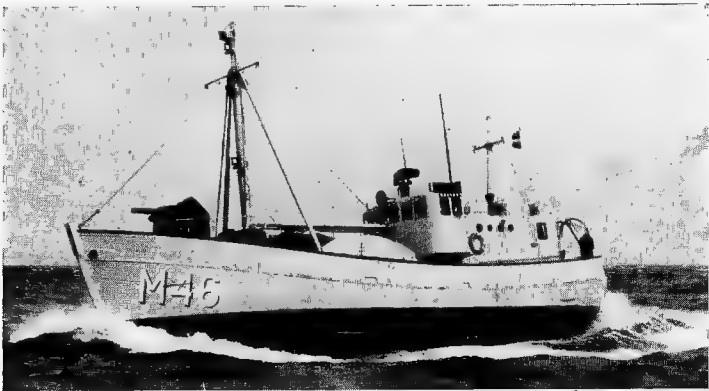
HARPUN

Displacement: 400 tons standard
Dimensions: 121½×23×14 feet
Guns: 1—57 mm.
Machinery: Triple expansion. 1 shaft. I.H.P.: 750=11 kts.

General
Coast artillery patrol vessel. Launched in 1925. A converted Norwegian trawler.

Disposals
Sister ship Granat was discarded in 1964. The coast artillery patrol vessels Krut and Kanon, converted Norwegian trawlers, were sold out of the service in 1959.

INSHORE MINESWEEPERS



GALTEN 1963, Royal Swedish Navy, Official

9 "Orust" Class

BLACKAN (M 44)
DÄMMAN (M 45)
GALTEN (M 46)

GILLÖGA (M 47)
HISINGEN (M 43)
ORUST (M 41)

RÖDLÖGA (M 48)
SVARTLÖGA (M 49)
TJÖRN (M 42)

Displacement: 110 tons standard, others 140 tons
Dimensions: 62½×19½×4½ feet; others 76½×21×4½
Guns: 1—20 mm. AA., others 1—40 mm. AA.
Machinery: 2 diesels. B.H.P.: 600=9 kts.

General
Orust and Tjörn were launched in 1948. Of the fishing cutter type. Blackan, Dämmän, Galtén and Hisingen were launched in 1957. Three more authorised in Apr. 1962 were built in 1964.



M 25 1953, Royal Swedish Navy, Official

10 Large Motor Launch Type

M 15 **M 19** **M 21** **M 23** **M 25**
M 16 **M 20** **M 22** **M 24** **M 26**

Displacement: 70 tons standard
Dimensions: 85½×16½×4½ feet
Guns: 1—20 mm.
Machinery: Diesel. B.H.P.: 600=13 kts.

General
All launched in 1941. Inshore minesweepers of the large motor launch type. M 17 and M 18 of this type were rerated as tenders and renamed Lommen and Spøven, respectively, see later page.

Disposals
Of the inshore minesweepers of the medium motor launch type, M 1 and M 2 were scrapped in 1953, M 3, M 4, M 5, M 6, M 9 and M 10 were converted into inshore surveying vessels (see later page), M 7 and M 8 were taken over as patrol boats, and M 11, M 12, M 13 and M 14, were stricken in 1960.

SALVAGE VESSELS (Bagningsfartyg)



BELOS 1964, Royal Swedish Navy, Official

New Construction

Displacement: 1,000 tons standard
Dimensions: 204×27×12 feet
Aircraft: 1 helicopter
Machinery: Diesel, 2 shafts. B.H.P.: 1,200=13 kts.

General
A new salvage vessel built to succeed and take the name of the old Belos. Launched on 15 Nov. 1961. Completed on 29 May 1963. Equipped with a decompression chamber.

Disposal
The old salvage vessel Belos, the world's oldest naval vessel in service (she helped to raise the 334-year old warship Vasa in 1961) was discarded on 1 Aug. 1963.

PATROL BOATS (Vedettbåtar)



V 57 1962, A. Kull

V 57

Displacement: 125 tons standard
Dimensions: 98 (pp.), 105 (o.a.)×17½×7½ feet
Guns: 2—20 mm. AA.
Machinery: Diesel. B.H.P.: 500=13.5 kts.
Complement: 12

General
Built at Stockholm. Launched in 1953. Fitted for minelaying. In Coast Artillery.



V 53 1962, Royal Swedish Navy, Official

V 51 (1944) **V 53** (4 Dec. 1944) **V 55** (19 Sep. 1944)
V 52 (4 Oct. 1945) **V 54** (4 Oct. 1945) **V 56** (2 Aug. 1945)

Displacement: 125 tons standard
Dimensions: 98×17½×7½ to 7½ feet
Guns: 1—20 mm., 1 M.G.
Machinery: Triple expansion, 1 shaft. I.H.P.: 400=12 kts.
Boiler: 1 Watertube (coal-burning)

General
Launch dates above. All the above boats are manned by the Coast Artillery. The old ex-torpedo boats V 5, V 8 and V 14 were discarded in 1957.

SVK 1 **SVK 2** **SVK 3** **SVK 4** **SVK 5**

Displacement: 19 tons
Dimensions: 55½×12×4 feet
Guns: 1—20 mm. AA.
Speed: 11 kts.

General
Patrol launches of the Sjövärnsskären type. All launched in 1944. Sjövärnsskären=R.N.V.R. Tumlarén, a small fishing cutter, also belongs to the SVK.
(M 7 and M 8, former inshore minesweepers of the medium motor launch type, have been taken over as patrol boats 50 tons standard displacement, 78½×16½×4½ feet, diesels. B.H.P.: 400=13 kts.)
There are also ten small Bevakningsbåt, Nos. 61-70, launched in 1960-61. 30 tons standard displacement, 69×15×4 feet; 1—20 mm. gun, speed 19 kts.

TRAINING SHIPS (Skonerter)

FALKEN (12 June 1947) **GLADAN** (14 Nov. 1946)

Displacement: 220 tons standard
Dimensions: 111 (w.f.), 129½ (o.a.)×23½×13½ feet
Machinery: Auxiliary diesel. B.H.P.: 50

General
Sail training ships. Schooners. Launch dates above. Sail area 5,511 square feet.

WATER CARRIERS

FRYKEN

Displacement: 307 tons standard
Dimensions: 105×19×9 feet
Machinery: Speed=10 kts.

General
A new construction water carrier. Launched in 1959 and completed in 1960. Pennant No. 263.

UNDEN

Displacement: 500 tons
Dimensions: 121½×23½×14 feet
Speed: 10 kts.

General
Launched in 1946. Pennant No. 268 painted on the bows.

GÄLNAN

Displacement: 100 tons
Dimensions: 95×19×9 feet
Machinery: Speed=8 kts.

General
Launched in 1942. Small water tanker for harbour and local services.

SUPPLY SHIP

FREJA

Displacement: 300 tons standard (450 tons full load)
Dimensions: 160½×27½×10 feet
Machinery: Speed: 11 kts.

General
Built by Kroger, Rendsburg. Launched in 1953. Employed as a provision ship. No. 270.

SURVEYING VESSELS (Sjömättningsfartyg)

I New Construction

Displacement: 900 tons
Dimensions: Length 183½ feet
Machinery: Speed=15kts.

General
A new surveying vessel is planned to replace *Svalan* in the near future, but it is still uncertain when she will be built.

RAN
Displacement: 285 tons standard
Dimensions: 98½×23×8½ feet

General
Ran was launched in 1945 and completed and commissioned for service in 1946.

GUSTAF AF KLINT
Displacement: 750 tons standard
Dimensions: 170½×28½×15½ feet
Machinery: Diesel. Speed=10 kts.

General
Launched in 1941. Reconstructed in 1963, see revised particulars above. She formerly had a displacement of 650 tons standard and a length of 154 feet. A photograph appears in the 1953-54 to 1963-64 editions.



M 11. 1953, Royal Swedish Navy, Official

6 Medium Motor Launch Type

ANDEN (ex-M 9) **MÅSEN** (ex-M 3) **SVARTAN** (ex-M 5) **TARNEN** (ex-M 4)
GRISSLAN (ex-M 6) **VIGGEN** (ex-M 10)

Displacement: 50 tons standard
Dimensions: 78½×16½×4½ feet
Machinery: Diesel. B.H.P.: 400=13 kts.

General
Former inshore minesweepers of the motor launch type, launched in 1940 and subsequently converted into surveying vessels. M 7 and M 8 were taken over as patrol boats (see under Inshore Minesweepers and under Patrol Boats on earlier pages).

IOHAN NORDENANCKAR (1924)
Displacement: 260 tons standard
Dimensions: 98½×22½×8½ feet
Machinery: Speed: 8 kts.

Disposal
The small surveying vessel *Kompass*, launched in 1938, was removed from the effective list in 1963.

PETTER GEDDA (1924)
Displacement: 135 tons standard
Dimensions: 82×18×7 feet
Machinery: Speed: 6 kts.

EJDERN (1916)
Displacement: 95 tons standard
Dimensions: 78½×15½×17½ feet
Machinery: Speed: 8 kts.

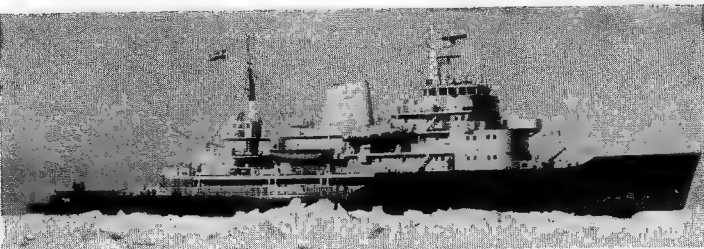
NILS STRÖMCRONA (1894)
Displacement: 140 tons standard
Dimensions: 90×17×8½ feet
Guns: None in peacetime
Machinery: Speed: 9 kts.

General
Launch dates of the above four vessels in parentheses above. The older surveying vessels will eventually be replaced.

Disposals
The very old surveying vessel *Svalan*, launched in 1881, see particulars in the 1960-61 and earlier editions, is being scrapped and replaced by a new surveying vessel in the near future.

The very old surveying vessel *Svensksund*, launched in 1891, was officially deleted from the list in 1962.

ICEBREAKERS (Isbrytarfartyg)



TOR 1964, Royal Swedish Navy, Official

I New Construction

TOR
Displacement: 5,260 tons standard (officially revised figure)
Dimensions: 254½ (pp.), 277½ (o.a.)×69½×20½ feet
Machinery: Wärtsilä-Sulzer diesel-electric. 4 shafts, 2 forward, 2 aft. H.P.: 12,000=18 kts.

Construction
Launched from Wärtsilä's Crichton-Vulcan yard, Turku, on 25 May 1963. Towed to Sandvikens Skeppsdocka, Helsingfors, for completion. Delivered on 31 Jan. 1964. Dimensionally larger but generally similar to *Oden*, and a near-sister to *Tarmo* built for Finland.

Icebreakers—continued



ODEN 1958, Royal Swedish Navy, Official

Displacement: 5,260 tons standard
Dimensions: 256 (pp.), 273½ (o.a.)×63½×22½ feet
Machinery: Diesel-electric: 4 shafts. B.H.P.: 10,500=17 kts.
Oil fuel: 740 tons
Complement: 75

Construction
Similar to the Finnish *Volma* and 3 Soviet icebreakers. 4 screws, 2 forward, 2 aft. Built at Sandvikens, Helsingfors. Launched on 16 Oct. 1956. Completed in 1958.



THULE 1955, Royal Swedish Navy, Official

Displacement: 2,200 tons standard
Dimensions: 187 (w.l.), 204½ (o.a.)×50×19 (max.) feet
Machinery: Diesel-electric. 3 shafts (1 forward). B.H.P.: 4,800=16 kts.
Complement: 43

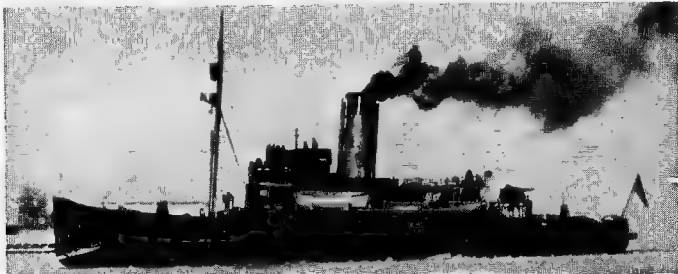
Construction
Built at the Royal Swedish Naval Dockyard, Karlskrona. Launched in 1951. Completed in 1953.



YMER 1953, Royal Swedish Navy, Official

Displacement: 4,330 tons standard
Dimensions: 240 (w.l.), 258 (o.a.)×63½×22½ feet
Guns: 4—3 inch AA., 1—40 mm. AA., 4—25 mm. AA.
Machinery: 6 Atlas diesel-electric. H.P.: 9,000=16 kts.
Complement: 44

Construction
Built by Kockums M.V. A/B., Malmö. Launched in 1933. *Ymer* was the first large icebreaker to be given Diesel-electric propulsion. She was designed to carry a seaplane for ice spotting and survey purposes.



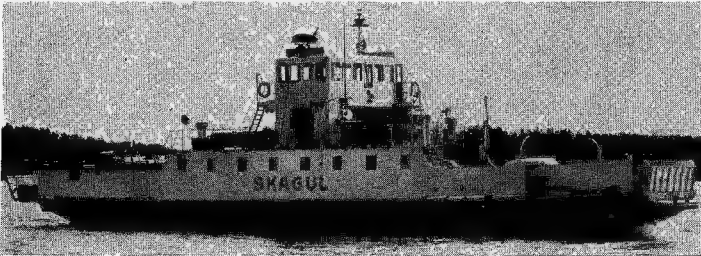
ATLE 1949, Official

Displacement: 1,750 tons standard (2,740 tons full load)
Dimensions: 194½ (w.l.), 207 (o.a.)×55½×22½ feet
Guns: 4—57 mm AA., 4 M.G.
Machinery: H.P.: 4,000=15 kts.
Complement: 44

General
Launched in 1926. This icebreaker will eventually be replaced by a new icebreaker.

LANDING CRAFT

Nos. 201-204, 205-238, 239-241
Displacement: 31 tons
Dimensions: 69×13½×4½ feet
Machinery: Speed=18 kts.
General
A series of 41 landing craft rated as *Landstigningsfarkoster*. Launched in 1957.
GRIM
Displacement: 380 tons
Dimensions: 116½×28×8½ feet
Machinery: Speed=12 kts.
General
General utility landing craft of improved "Ane" class design. Launched in 1961.



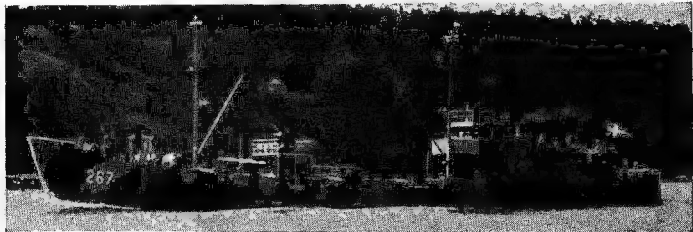
SKAGUL 1962, Royal Swedish Navy, Official
2 "Skagul" Class
SKAGUL Displacement: 355 tons standard
Dimensions: 118×28×8½ feet
Machinery: Speed=12 kts.
Construction
Sleipner was launched in 1959 and completed in 1960. *Skagul* was launched and completed in 1960.



L 54 1959, Royal Swedish Navy, Official
L 51 L 52 L 53 L 54 L 55
Displacement: 37 tons standard
Dimensions: 50½×16×3½ feet
Machinery: Speed=8 kts.
General
Landing craft of general utility type. Launched in 1948. Sister craft L 53 and L 54 were laid up in 1960.
ANE Displacement: 135 tons (*Loke* 145 tons)
Dimensions: 91½×26½×5 feet (*Loke* 6 feet)
Machinery: Speed=8.5 kts. (*Loke* 9.2 kts.)
General
Artillery transport craft for general purpose duties. Launched in 1943-45.

OILERS (Tankfartyg)

TANKAREN (ex-*Lister*, 1941)
Displacement: 500 tons standard
Measurement: 300 tons deadweight
Dimensions: 118×22×10 feet
Machinery: Speed: 10 kts.
General
Launch dates in parentheses above. Pennant Nos. 269, 267 and 266, respectively.
Disposal
The old oiler *Brännaren* was discarded on 1 Jan. 1964, it is officially stated.



OLJAREN 1959, Ossi Jansson
OLJAREN (ex-*Martha*, 1939)
Displacement: 1,100 tons standard (695 tons cargo capacity)
Dimensions: 179×28×11 feet
Guns: 2—25 mm. AA.
Machinery: Speed: 9 kts.
ELDAREN (ex-*Muron*, 1938)
Displacement: 875 tons standard (535 tons cargo capacity)
Dimensions: 169×25½×10 feet
Guns: 2—25 mm. AA.
Machinery: Speed: 9.5 kts.
General
Launch dates in parentheses above. Pennant Nos. 269, 267 and 266, respectively.
Disposal
The old oiler *Brännaren* was discarded on 1 Jan. 1964, it is officially stated.

TENDERS

ACHILLES Displacement: 450 tons
Dimensions: 108½×28½×12 feet
General
Achilles was launched in 1962 and *Ajax* in 1963. Both are icebreaking tugs of the same class. Pennant Nos. 276 and 277, respectively.
HERMES Displacement: 185 tons
Dimensions: 75½×22½×13 feet
Machinery: Speed=11.5 kts.
General
Launched in 1958. Pennant No. 318.
HÄGERN (ex-*Torpedbårgaren*) Displacement: 50 tons standard
Dimensions: 92×16½×6 feet
General
Häger was launched in 1951. Pennant No. 274. *Pelikanen*, No. 275, under construction, is similar to *Häger*.
LOMMEN (ex-M 17) Displacement: 70 tons standard
Dimensions: 85½×16½×4½ feet
Machinery: Diesel. B.H.P.: 600=13 kts.
General
Former inshore minesweepers of the large motor launch type. Both launched in 1941.
Disposals
The tenders *Starkodder* (ex-*Graham*) and *Styrbjörn* (ex-*Klo*), former whale catchers, built in Norway, were still in existence in 1961. The tender *Orion* was stricken in 1960.
The old supply tender *Sveparen*, former minesweeper, ex-tug, was officially discarded on 1 Jan. 1964. Sister ship *Sprängaren* was discarded in 1961.

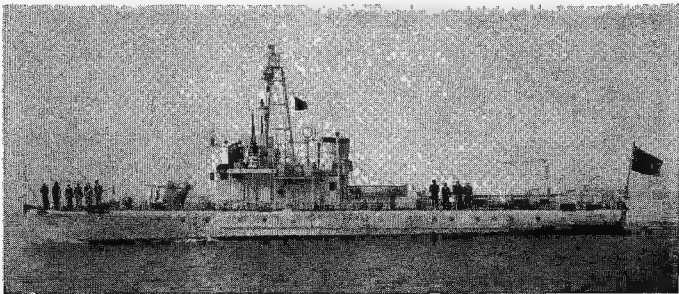
SYRIA

MINESWEEPERS

2 Ex-U.S.S.R. "T 43" Type

Displacement: 500 tons standard (600 tons full load)
Dimensions: 200×27½×9 feet
Guns: 4—37 mm. AA., 8—13 mm. AA.
Machinery: Diesel motors. 2 shafts. Speed=18 kts.
General
Reported in 1962 to have been transferred from the Soviet Navy to the Syrian Navy.

PATROL VESSELS



"Ch" Type 1957, M. Henri Le Masson
3 Ex-French "Ch" Type
AKABA BEN NASEH (ex-*Ch* 10) Displacement: 107 tons standard (131 tons full load)
AL HARISSI (ex-*Ch* 19) Dimensions: 116½ (pp.), 121½ (o.a.)×17½×6½ feet
Guns: 1—3 inch; 2—20 mm. AA.
A/S weapons: Depth charges
Machinery: MAN diesels. 2 shafts. B.H.P.: 1,130=16 kts.
Oil fuel: 5 tons
Radius: 1,200 miles at 8 kts.; 680 miles at 13 kts.
Complement: 28
General
These former French submarine chasers were transferred in 1962 to form the nucleus of the Syrian Navy.

Name	Builders	Laid down	Launched	Completed
Akaba Ben Naseh	A. C. de France	1938	Jan. 1940	Apr. 1940
Al Harissi	A.C. Seine Maut	1938	1939	1940
Tarek Ben Said	A.C. Seine Maut	1938	1939	1940

FAST PATROL BOATS

15 Ex-U.S.S.R. Type

Displacement: 50 tons
Tubes: 2—21 inch
Machinery: Speed=40 kts.
General
Five motor torpedo boats were transferred from the U.S.S.R. at Latakia on 7 Feb. 1957, and others subsequently.
New Construction
The construction is planned of patrol vessels of 150 tons with a speed of 27 kts.; motor torpedo boats; and seaward defence boats of 60 tons with a speed of 23 kts.
Acquisition Programme
Two small submarines of the "M" type and six motor torpedo boats were expected from the U.S.S.R. Several small craft were received from France.

NATIONAL REPUBLIC OF CHINA

Administration

Commander-in-Chief Chinese Nationalist Navy:
Admiral Liu Kwang-kai

Fleet Commander:
Vice-Admiral Tsui Chih-Tao

Naval Attaché in Washington:
Rear-Admiral Meng-Bing Chih.

Ships

Chinese (Taiwan) ships' names are prefaced by "R.C.N." (Republic of China Navy).

Chinese (Taiwan) naval vessels were assigned a "block" number painted on the bow and serving as a means of identification and classification.

Personnel

1965: Naval, 35,000 officers and ratings; Marine, 27,000 officers and men.

Summary

5	Destroyers	50	Coastal Craft
6	Frigates	6	Transports
2	Escort Vessels	5	Oilers
5	Fleet Minesweepers	27	LSTs
1	Minelayer	18	LSMs
25	Submarine Chasers	5	LSIs
1	Gunboat	3	LSLs
8	Coastal Minesweepers	30	LCUs

The Chinese (Taiwan) Navy has undergone training with the aid of officers and men of the United States Military Assistance Advisory Group on Taiwan.

A small detachment of United States Marine Corps advisers has trained Chinese (Taiwan) marines in amphibious operations.

Mercantile Marine

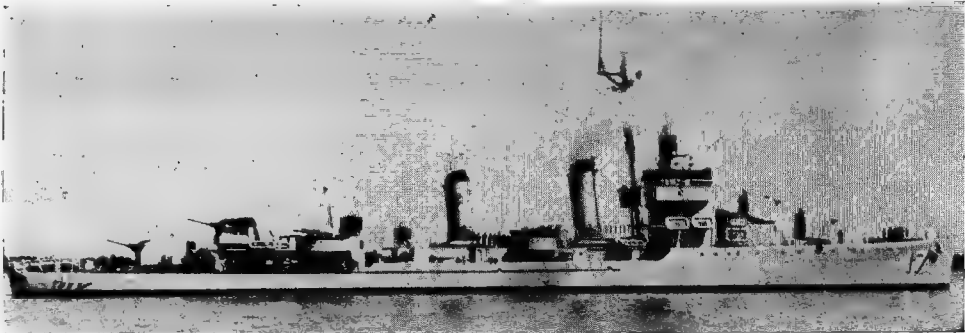
Lloyd's Register of Shipping:
117 vessels of 588,355 tons gross

DESTROYERS

2 Ex-U.S. "Gleaves" Class

HSUEN YANG (ex-U.S.S. Rodman, DD 456, ex-DMS 21)
NAN YANG (ex-U.S.S. Plunkett, DD 431)

Name:	Hsuen Yang	Nan Yang
No.:	16	17
Builders:	Federal S.B. & D.D. Co.	Federal S.B. & D.D. Co.
Laid down:	2 Dec. 1940	1 Mar. 1939
Launched:	26 Sep. 1941	9 Mar. 1940
Completed:	27 Jan. 1942	16 July 1940
Displacement:	Hsuen Yang 1,630 tons, Nan Yang 1,700 tons standard (2,575 tons full load)	
Dimensions:	341 (w.l.) 348½ (o.a.)×36×18 (max.) feet	
Guns:	Nan Yang: 4—5 inch, 38 cal.; 4—40 mm. AA.; 4—20 mm. AA. Hsuen Yang: 3—5 inch, 38 cal.; 4—40 mm. AA.; 4—20 mm. AA.	
Tubes:	5—21 inch (in Nan Yang)	
Machinery:	General Electric geared turbines, 2 shafts, S.H.P.: 50,000=37 kts.	
Boilers:	4 Babcock & Wilcox	
Oil fuel:	600 tons	
Radius:	5,000 miles at 15 kts.	
Complement:	250	



NAN YANG

1962, courtesy Mr. W. H. Davis

General

Transferred on loan from the U.S. Navy to the Chinese (Taiwan) Navy at Charleston, South Carolina, Rodman on 28 July 1955 and Plunkett on 16 Feb. 1959 (sailed for Taiwan in May 1959). The loan of Hsuen Yang (ex-Rodman) was extended for five more years by the U.S.A. in 1960.

Photographs

An official photograph of the destroyer Hsuen Yang, former U.S. destroyer minesweeper, afterwards reclassified as a destroyer, a port quarter oblique view, appears in the 1956-57 to 1961-62 editions, showing a different scheme of main armament with a modified layout.

2 Ex-U.S. "Mayo" Class

HAN YANG (ex-U.S.S. Hilary P. Jones, DD 427)
LO YANG (ex-U.S.S. Benson, DD 421)

Name:	Han Yang	Lo Yang
No.:	15	14
Builders:	Philadelphia Navy Yard	Bethlehem (Quincy)
Laid down:	16 Nov. 1938	16 May 1938
Launched:	14 Dec. 1939	15 Nov. 1939
Completed:	7 Sep. 1940	25 July 1940
Displacement:	1,620 tons standard (2,450 tons full load)	
Dimensions:	340 (w.l.), 348½ (o.a.)×35½×18 (max.) feet	
Guns:	4—5 inch 38 cal.; 4—40 mm. AA., 6—20 mm. AA.	
A/S weapons:	D.C. mortar and D.C. throwers	
Machinery:	2 sets General Electric geared turbines, 2 shafts, S.H.P.: 50,000=36.5 kts. (designed speed)	
Boilers:	4 high pressure	
Oil fuel:	600 tons	
Radius:	5,000 miles at 15 kts.	
Complement:	250	



HAN YANG

Added 1957, Official

General

Presented by U.S.A. Transferred to China (Taiwan) at Charleston, South Carolina, on 26 Feb. 1954.

Photographs

A photograph of Lo Yang appears in the 1954-55 to 1957-58 editions.

1 Ex-Japanese "Kagero" Type

TAN YANG (ex-Yukikaze)

No.:	12
Builders:	Sasebo, Japan
Launched:	1939
Completed:	1940
Displacement:	2,050 tons standard (2,490 tons full load)
Dimensions:	388 (o.a.)×35½×12½ feet
Guns:	3—5 inch, 38 cal., d.p. in open mounts, in "A," "X," and "Y" positions; 2—3 inch d.p. in open mounts, one on deck in "P" position, one in a deckhouse in "Q" position; 10—40 mm. AA. distributed fore and aft
A/S weapons:	D.C. racks
Machinery:	2 geared turbines, 2 shafts, S.H.P.: 52,000=35 kts. (designed). See General
Boilers:	3 Kampon
Radius:	5,000 miles at 18 kts.
Complement:	290



TAN YANG

1962. Official

General

The largest combatant unit in the Taiwan Navy. Underwent extensive overhaul in 1951-52. On trials in Feb. 1953, 27.5 kts was reached, and 26 kts. maintained for 1 hour. Rearmed with U.S. guns in 1959.

Disposal

The destroyer leader Fen Yang (ex-Japanese: Yukikaze), unarmed and in a very bad state, able neither to steam nor steer, and laid up as non-operational for some years, has been discarded.

FRIGATES

4 Ex- U.S. "Bostwick" Type

TAI CHAO (ex-U.S.S. *Carter*, DE 112)
TAI HO (ex-U.S.S. *Thomas*, DE 102)
TAI HU (ex-U.S.S. *Breeman*, DE 104)
TAI TSANG (ex-*Bostwick*, DE 103)

Displacement: 1,240 tons standard (1,900 tons full load)
Dimensions: 306 (o.a.)×36½×12 (max.) feet
Guns: 4—3 inch, 50 cal. d.p., 3 or 4—40 mm. AA., 9 or 10—20 mm. AA.
A/S weapons: 8 D.C.T.
Tubes: 3—21 inch in triple mounting
Machinery: Diesel electric, 2 shafts. B.H.P.: 6,000=21 kts. (19 kts. in service)
Oil fuel: 300 tons
Radius: 11,500 miles at 11 kts.
Complement: 220

Pen No.	Name	Launched	Completed
26	Tai Chou	29 Feb. 44	2 May. 44
23	Tai Ho	31 July 43	21 Nov. 43
25	Tai Hu	31 July 43	12 Dec. 43
24	Tai Tsang	30 Aug. 43	21 Dec. 43



TAI HO Type
General
Former United States destroyer escorts. Transferred on 31 Dec. 1948. Two underwent overhaul in Japanese yards, late in 1952.

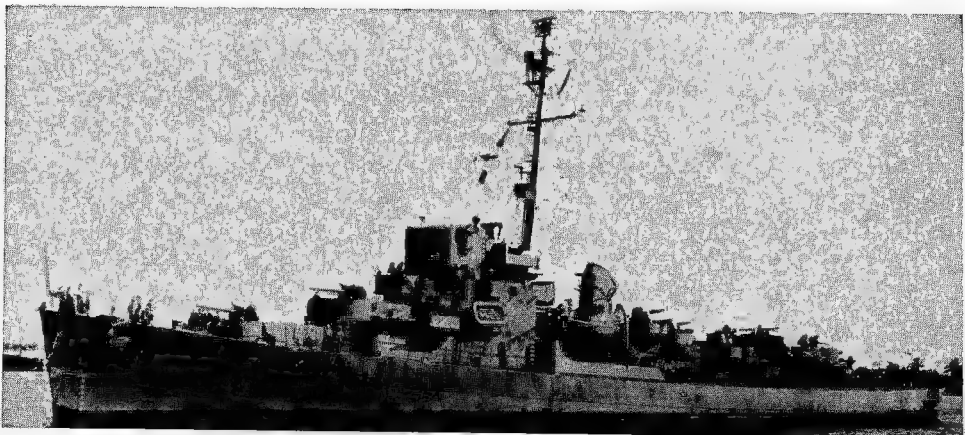
1 Ex-U.S. "Evarts" Type

TAI KANG (ex-U.S. *Wyffels*, DE 6)

Displacement: 1,150 tons standard (1,430 tons full load)
Dimensions: 283½ (w.l.), 289½ (o.a.)×35×10½ feet
Guns: 3—3 inch, 50 cal. dual purpose. 4—40 mm. AA., 11—20 mm. AA.
A/S weapons: 9 D.C.T.
Machinery: Diesel electric drive, 2 shafts. H.P.: 6,000=21.5 kts. (19 kts. sea speed)
Radius: 5,500 miles at 14 kts.
Complement: 120

General
Former United States destroyer escort. Built at Boston Navy Yard. Launched in 1943. Completed on 21 Apr. 1943. Presented to China in 1946. Pennant No. 21. Sister ship *Tai Ping* (ex-U.S.S. *Decker*, DE 47), was torpedoed and sunk by Chinese Republican motor torpedo boats off Tachen Islands on 14 Nov. 1954.

Recent Disposals
The following frigates were scrapped in 1964:—
Hsin Yang (ex-*Hatsume*), ex-Japanese "Hagi Type, modified "Matsu" class (sister ships *Hon Yang*, *Hua Yang* and *Hui Yang* were already hulked or discarded as beyond economical repair); *Yung Ching* (ex-*Saishu*),



TAI KANG
ex-Japanese Minelaying Type, formerly rated as a light minelayer and latterly as a destroyer escort.
The following frigates were discarded in 1963:—
Cheng An (ex-*Hsueh Feng*, ex-*Wei Tai*, ex-*Yashiro*), ex-Japanese "Mikura" Type; *Lin An* (ex-*Tsushima*), ex-Japanese "Etorofu" type; *Chen An* (ex-Japanese No. 40) and *Tai An* (ex-Japanese No. 104), former Japanese turbine "Kaiboken" Type (sister ships *Tai Nan* and *Tung An* were already discarded); *Chao An* (ex-Japanese No. 107) and *Jui An* (ex-*Ying Kan*, ex-Japanese No. 67), former Japanese diesel "Kaiboken" Type (sister ships *Chang An* and *Tsing Pai* were already hulked).

Ex-Canadian "Castle" Type

TE-AN (ex-*Hsi Lin*, ex-*Orangeville*, ex-*Heddingham Castle*)
No.: 81 (ex-61).
Builders: Henry Robb Ltd., Leith
Laid down: 23 July 1943
Launched: 26 Jan. 1944
Completed: 10 May 1944
Transferred: 1 June 1951

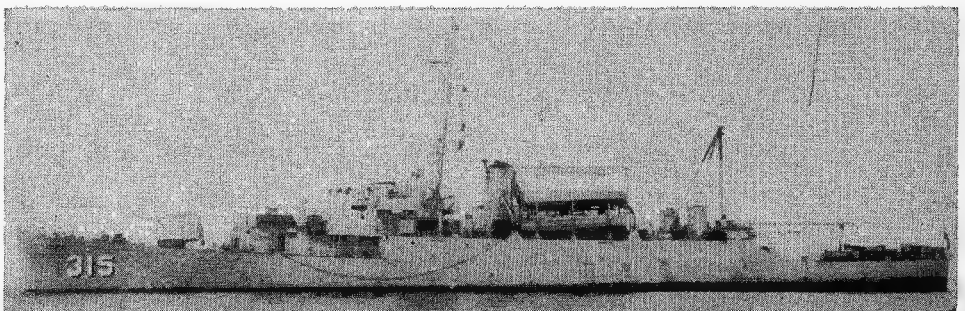
Displacement: 1,100 tons standard (1,580 tons full load)
Dimensions: 252 (o.a.)×36½×15½ feet
Guns: 1—4.7 inch d.p., 1—3 inch, 4—40 mm., 4—20 mm.
Machinery: Triple expansion I.H.P.: 2,800 =16.5 kts.
Boilers: Two 3-drum type
Oil fuel: 480 tons
Radius: 9,400 miles at 10 kts.
Complement: 100

General
Originally a Canadian "Castle" class corvette, but subsequently adapted for commercial use. Reconverted from a merchant ship and taken over by the Chinese (Taiwan) Navy in June 1951 and rearmed.
Disposal
Sister ship *Kao-An* (ex-*Chin Chin*, ex-*Tilfsönburg*, ex-*Pembroke Castle*) was discarded in 1963.

FAST TRANSPORT (Modified Destroyer Escort)

TIEN SHAN (ex-U.S.S. *Kleinsmith*, APD 134, ex-DE 718)
Displacement: 1,400 tons standard, 1,650 tons trials (2,130 tons full load)
Dimensions: 300 (w.l.) 306 (o.a.)×37×12½ (max.) feet
Guns: 1—5 inch, 38 cal. d.p., 6—40 mm. AA.
Machinery: General Electric turbines with electric drive, 2 shafts. S.H.P.: 12,000=23.6 kts. (trials)
Boilers: 2 Express
Oil fuel: 350 tons
Radius: 5,500 miles at 15 kts.
Complement: 204+162 troops

General
Former destroyer escort converted by the U.S.A. and officially rated as a High Speed Transport. Can carry four LCVP (Landing Craft, Vehicle-Personnel). Transferred from the United States Navy to Nationalist China at Tsoying, Taiwan, on 16 May 1960. The name *Tien Shan* means Heavenly Mountain. Pennant No. 315.



TIEN SHAN
1962, Official

ESCORT PATROL VESSELS



YUNG TAI 1963, Official

2 Ex-U.S. PCE Type

WEI YUAN (ex-Yung Hsiang, ex-PCE 869, 6 Feb. 1943)
YUNG TAI (ex-U.S.S. PCE 867, 3 Dec. 1942)
Displacement: 640 tons standard (903 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.)×33×9½ feet (max.)
Guns: 2—3 inch d.p., 3—40 mm. AA., 6—20 mm. AA., 4 D.C.T.
Machinery: Diesel, 2 shafts. B.H.P.: 1,800=17 kts.
Complement: 110

General
Launch dates above. Built by Albina Engine and Machinery Works, Portland, Ore. One 3 inch, 50 cal. gun was added in 1955. Rated as gunboats. Pennant Nos.: Wei Yuan 42, Yung Tai 41, Hsien Neng (ex-Japanese Okitsu, ex-Italian minelayer Lepanto) was discarded in 1963.

3 Ex-U.S. MSF Type

CHIEN MEN (ex-U.S.S. Toucan, MSF 387) PCE 45
REDSTART (ex-U.S.S. MSF 378)
WAXWING (ex-U.S.S., MSF 389)
Displacement: 890 tons standard (1,250 tons full load)
Dimensions: 215 (w.l.), 221½ (o.a.)×32½×10½ (max.) feet
Guns: 2—3 inch, 50 cal. (single), 4—40 mm. AA. (2 twin), 4—20 mm. AA. (2 twin)
A/S weapons: 1 ASW projector, 1 triple ASW torpedo tube mounting, 2 D.C. projectors, 2 D.C.T.
Machinery: 2 shafts. B.H.P.: 3,530=18 kts.

General
Former U.S. Fleet Minesweepers of the "Auk" Class. Steel hulled. Built by American S.B. Co., Cleveland, Ohio (Toucan and Waxwing) and Savannah Mach. & Foundry Co. (Redstart). All launched and completed in 1964-65. Minesweeping gear removed so that the ships can be employed as Escort Patrol Vessels. Toucan was transferred on 22 Dec. 1964, and the other two scheduled for transfer in 1965.

FLEET MINESWEEPERS/GUNBOATS



YUNG CHANG 1962, Official

7 Ex-U.S. MSF (ex-AM) Type

47 **YUNG CHIA** (ex-U.S.S. Implicit, AM 246, 6 Sep. 1943)
48 **YUNG HSIU** (ex-U.S.S. Pinnacle, AM 274, 11 Sep. 1943)
43 **YUNG SHENG** (ex-U.S.S. Lance, AM 257, 10 Apr. 1943)
49 **YUNG SHOU** (ex-U.S.S. Pivot, AM 276, 11 Nov. 1943)
44 **YUNG SHUN** (ex-U.S.S. Logic, AM 258, 10 Apr. 1943)
51 **YUNG CHANG** (ex-U.S.S. Refresh, AM 287, 12 Apr. 1944)
50 **YUNG FENG** (ex-U.S.S. Prime, AM 279, 22 Jan. 1944)
Displacement: 650 tons standard (945 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.)×33×9½ feet (max.)
Guns: 1—3 inch d.p., 3—40 mm. AA., 6—20 mm. AA. (Yung Chang, 2—5 inch d.p., 4—40 mm. AA., 6—20 mm. AA.)
Machinery: Diesel, 2 shafts. B.H.P.: 1,710=14.8 kts.
Complement: 104

General
All MSF (ex-AM) type fleet minesweepers acquired from the U.S. Navy. Launch dates above. Yung Feng is fitted for minelaying with tracks on her stern and is rated as a coastal minelayer. Yung Chang is rated as a gunboat. Yung Hsing served as a maritime customs vessel. Yung Ting was converted to a survey ship, see later page.
Disposals
Sister ships Yung, Chun No. 52 (ex-U.S.S. Gavia, AM 363), Yung Ho, No. 53 (ex-U.S.S. Delegate, AM 217) and Yung Kang, No. 54 (ex-U.S.S. Elusive, AM 225), all rated as gunboats, and Yung Hsing, No. A 4 (ex-U.S.S. Embattle, AM 226) in the Coastguard, were scrapped in 1964. It is officially stated. Yung Ning, No. 46 (ex-U.S.S. Magnet, AM 260), rated as a minesweeper, was discarded in 1963.

SUBMARINES

General
Early in 1960 Nationalist China asked the United States to equip the Nationalists with submarines, and on 14 Mar. 1960, Nationalist China confirmed reports that it will receive submarines from the U.S. Navy under the Mutual Defense Assistance Program. In June 1963 the Commander-in-Chief, Chinese Nationalist Navy, predicted that his forces will acquire missile-firing submarines.

SUBMARINE CHASERS



CHUNG KIANG 16 Ex-U.S. PC Type United States Navy, Official

16 Ex-U.S. PC Type

105 **FUKIANG** (ex-Hwangpu, ex-U.S. PC 492), 29 Dec. 1941
108 **HSIANG KIANG** (ex-U.S. PC 786) 6 Feb. 1943
109 **CHIH KIANG** (ex-U.S. PC 1078), 8 Aug. 1942
110 **YUAN KIANG** (ex-U.S. PC 1182), 14 June 1943
111 **LI KIANG** (ex-U.S. PC 1208), 15 Sep. 1943
113 **KUNG KIANG** (ex-U.S. PC 1233), 11 Jan. 1943
114 **PO KIANG** (ex-U.S. PC 1254), 31 Oct. 1942
115 **CHUNG KIANG** (ex-U.S. PC 1262), 27 Mar. 1943
116 **CHING KIANG** (ex-U.S. PC 1168), 3 July 1943
118 **CHANG KIANG** (ex-U.S. PC 1232), 12 Dec. 1942
119 **TUNG KIANG** (ex-U.S.S. Placerville, ex-PC 1087)
120 **HSI KIANG** (ex-U.S.S. Susanville, ex-PC 1149)
122 **PEI KIANG** (ex-U.S.S. Hanford, ex-PC 1142)
123 **LIU KIANG** (ex-U.S.S. Escondido, ex-PC 1169)
124 **HAN KIANG** (ex-U.S.S. Vandalla, ex-PC 1175)
125 **TO KIANG** (ex-U.S.S. Milledgeville, ex-PC 1263)
Displacement: 280 tons standard (450 tons full load)
Dimensions: 173½ (o.a.)×23×10½ (max.) feet
Guns: 1—3 inch, 50 cal., 1—40 mm. AA., 5—20 mm. AA.
Machinery: Diesel, B.H.P.: 2,880=20 kts.
Oil fuel: 60 tons
Radius: 5,000 miles at 10 kts.
Complement: 65

General
Launch dates above. Hanford, Placerville, Escondido and Vandalla were transferred from the United States Navy to the Chinese (Taiwan) Navy on 15 July 1957. Milledgeville was transferred at Key West, Florida, in July 1959.
Disposals
Chien Fang and Wu Sung were discarded in 1951-52, and Chialing (ex-U.S. PC 1247) in 1964.

9 Ex-U.S. SC Type

SC 502 (ex-Chu Chien, ex-SC 708) **SC 503** (ex-103 Chu Chien, ex-SC 698)
Ex-SC 518 Ex-SC 648 Ex-SC 722 Ex-SC 735
Ex-SC 637 Ex-SC 703 Ex-SC 723
Displacement: 95 tons standard (148 tons full load)
Dimensions: 107½ (w.l.), 110½ (o.a.)×17×6½ feet
Guns: 1—40 mm. AA.
Machinery: Diesel, 2 shafts. B.H.P.: 800=15½ kts.
Complement: 28
Disposals
SC 501 (ex-101) Chu Chien, ex-SC 704) was for disposal in 1961. Min Chiang, No. 07 (ex-Fu Ling, ex-No. 9, ex-Hai Ta, ex-No. 402) was scrapped in 1964.

COASTAL MINESWEEPERS



YUNG NIEN 1963, Official

6 Ex-U.S. MSC Type

YUNG AN, MSC 56 (ex-U.S.S. MSC 140)
YUNG CHI, MSC 160 (ex-U.S.S. MSC 300)
YUNG CHUAN, MSC 58 (ex-U.S.S. MSC 278)
YUNG HSIN, MSC 59 (ex-U.S.S. MSC 302)
YUNG NIEN, MSC 57 (ex-U.S.S. MSC 277)
YUNG PING, MSC 55 (ex-U.S.S. MSC 123)
Displacement: 335 tons light (378 tons full load)
Dimensions: 138 (pp.), 145 (o.a.)×27×8½ feet
Guns: 2—20 mm. AA.
Machinery: 2 G.M. diesels 2 shafts. B.H.P.: 880=14 kts.
Complement: 40
General
"Bluebird" class non-magnetic and wooden hull construction. Built in U.S.A. MSC 123 and MSC 140 were transferred to Taiwan on 4 June 1955. MSC 277, launched on 30 June 1958, and MSC 278, launched on 1 Aug. 1958, both built by the Tacoma Boatbuilding Co., were transferred at Seattle on 10 June and 10 July, respectively, in 1959. MSC 300 and MSC 302 were transferred on 5 Mar. 1965.

2 Ex-Japanese AMS Type

541 CHIANG (ex-No. 22) **542 CHIANG YUNG** (ex-No. 19)
Displacement: 222 tons normal
Dimensions: 98×19½×7½ feet
Guns: 2—40 mm., 2—25 mm., 2 M.G.
Machinery: Diesel, Speed 9 kts.
General
Former Japanese auxiliary minesweepers. Built in Japan in 1942-43. (The United States minesweeping boat MSB 4 was transferred to Taiwan under MAP in Dec. 1961.)

GUNBOATS



CHU KIANG 1962, Official

I Ex-U.S. PGM Type

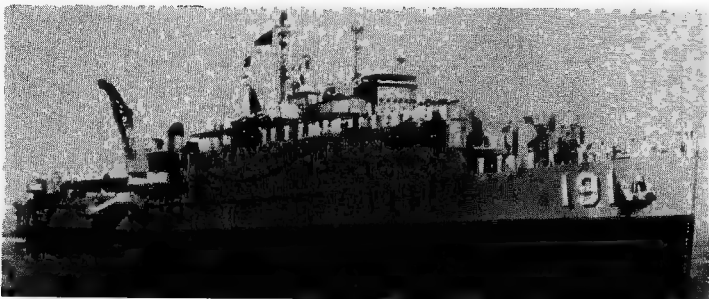
117 CHU KIANG (ex-U.S.S. PGM 31, ex-PC 1567)

Displacement: 295 tons standard (470 tons full load)
Dimensions: 173½ (o.a.), 170 (w.l.)×23×11 (max.) feet
Guns: 1—3 inch, 1—40 mm. AA., 4—20 mm. AA.
Machinery: 2 G. M. diesels. B.H.P.: 2,800=20 kts.
Complement: 80

General
Built by Leatham D. Smith S.B. Co., Sturgeon Bay, Wis. Laid down on 18 July 1944, launched on 23 Sep. 1944 and completed on 17 Jan. 1945. Transferred from the U.S. Navy in 1954. 103 *Ling Chiang* (ex-*Tung Ting*, ex-U.S.S. PGM 13) was torpedoed and sunk by Chinese Republican motor torpedo boats on 10 Jan. 1955. 101 *Ying Chiang* (ex-*Pao Ying*, ex-U.S.S. PGM 20) was torpedoed by Republican motor torpedo boats on 20 Jan. 1955, and was subsequently scrapped as beyond economical repair.

Disposals
Sister ship *Ou Chang*, No. 102 (ex-*Hung Tse*, ex-U.S.S. PGM 26), *Chu Chiang*, No. 106 (ex-*Ya Ling*, ex-49, ex-*Hai Hung*, SC 401), ex-japanese type and the very old gunboat *Chu Kuan*, No. 75, Japanese built, were scrapped in 1964. The old gunboat *Yung Hsiang*, also Japanese built and the old auxiliary mine-layer *Chieh 29* (ex-*Kuroshimu*), Japanese built, were previously deleted from the active list.

DOCK LANDING SHIP (LSD)



TUNG HAI 1965, Official

I Ex-U.S. "Ashland" Class

TUNG HAI LSD 191 (ex-U.S.S. *White Marsh*, LSD 8)

Displacement: 4,790 tons standard (8,700 tons full load)
Dimensions: 454 (w.l.), 457½ (o.a.)×72×18 feet
Guns: 12—40 mm. AA.
Machinery: Skinner Uniflow, 2 shafts, I.H.P.: 7,400=15.6 kts.
Boilers: 2, of 2-drum type
Complement: 326 (total accommodation)

General
Built by Moore Dry Dock Co. Launched on 19 July 1943. Designed to serve as parent ship for landing craft and coastal craft. Transferred from the U.S. Navy to the Chinese (Taiwan) Navy on 17 Nov. 1960 at Long Beach, California, under the Military Aid Programme.

REPAIR SHIPS

335 SOUNG-SHAN (ex-LST 202, ex-U.S.S. LST 1030)

Displacement: 1,625 tons light (4,080 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×14 feet
Machinery: Diesel, 2 shafts, B.H.P.: 1,700=11 kts.
Cargo capacity: 2,100 tons
Complement: 211

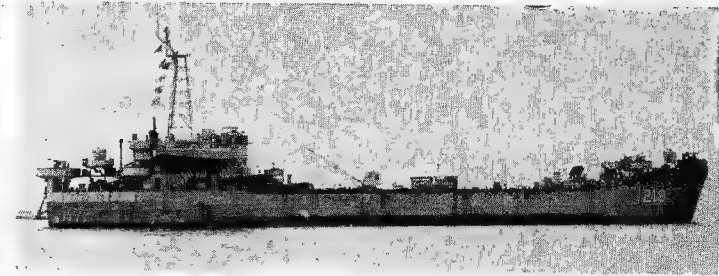
General
Former U.S. tank landing ship converted into a repair ship. Built at Boston Navy Yard. Laid down on 27 May 1944, launched on 25 June 1944 and completed on 19 July 1944.

Ex-VULCAIN (ex-U.S.S. *Agenor*, ARL 3, ex-LST 490)

Displacement: 1,625 tons light (4,080 tons full load)
Dimensions: 328 (o.a.)×50×14½ feet
Guns: 8—40 mm. AA.; 8—20 mm. AA.
Machinery: 2 diesels. B.H.P.: 1,700=10.8 kts.
Oil fuel: 1,060 tons
Radius: 6,000 miles at 9 kts

General
Former U.S. ocean tank carrier with bow doors. Built by Kaiser Co., Inc., Vancouver, Wash. Laid down on 24 Jan. 1943. Launched on 3 Apr. 1943. Completed on 20 Aug. 1943. Transferred from the U.S. Navy to France in 1951 for service in Indo-China. Returned to the U.S.A. by France, and then transferred to (Taiwan) China by the U.S.A. on 15 Sep. 1957.

TANK LANDING SHIPS



CHUNG SHIH 1962, Official

27 Ex-U.S. LST Type

LST 216 CHUNG KUANG (ex-U.S.S. LST 503) Ex-U.S.S. LST 520
LST 226 CHUNG SHIH (ex-U.S.S. *Sagadahoc County*, LST 1091) Ex-U.S.S. LST 535
LST 227 CHUNG MING (ex-U.S.S. *Sweetwater County*, LST 1152) Ex-U.S.S. LST 578
LST 231 CHUNG YEA (ex-U.S.S. *Sublette County*, LST 1144)
218 CHUNG CHIH (ex-U.S.S. *Berkeley County*, LST 279) 223 CHUNG FU (ex-U.S.S. *Iron County*, LST 840)
221 CHUNG CH'UAN (ex-*Wan Yiu*, ex-LST 640) 201 CHUNG HAI (ex-LST 755)
219 CHUNG HSI 204 CHUNGNG HSI (ex-LST 557)
208 CHUNG SHUN (ex-*Wan Kuo*, ex-LST 732)
224 CHUNG CHENG (ex-U.S.S. *Lafayette County*, LST 859) 209 CHUNG LIEN (ex-LST 1050)
206 CHUNG CHI (ex-LST 1017) CHUNG MING (ex-U.S.S. *Bradley County*, LST 400)
205 CHUNG CHIEN (ex-LST 716) 228 CHUNG SUO (ex-U.S.S. *Bradley County*, LST 400)
225 CHUNG CHIANG (ex-U.S.S. *San Bernadino County*, LST 1110) 203 CHUNG TING (ex-LST 537)
222 CHUNG SHENG (ex-LST 1033)
229 CHUNG WAN (ex-U.S.S. *Dukes County*, LST 735)
215 CHUNG YU (ex-*Wan Li*, ex-LST 330)
210 CHUNG YUNG (ex-LST 574)

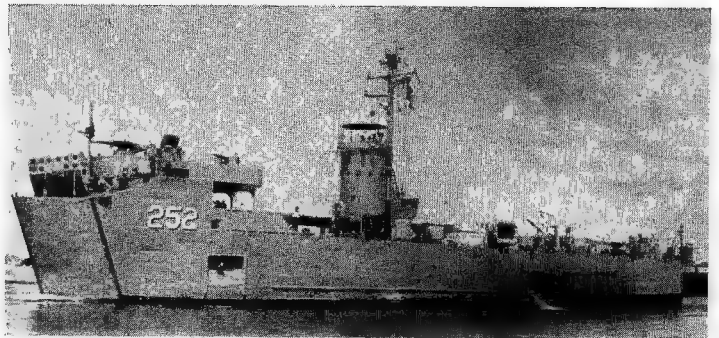
Displacement: 1,653 tons standard (4,080 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×14 (max.) feet
Guns: 6—40 mm. AA., 12—20 mm. AA.
Machinery: Diesel, 2 shafts, B.H.P.: 1,700=11 kts.
Complement: 119

General
Former United States tank landing ships LST 218, 400 and 735 were transferred to Nationalist China at San Diego, in July 1955 and 1960 (*Dukes County*). LST 216 was transferred from United States Navy at San Diego 29 April 1955, and LST 226 and LST 227 were transferred at Seattle on 21 Oct. 1958. LST 520, 535 and 578 were transferred to Taiwan China in Sep. 1958. LST 231 was transferred at Charleston, S.C., on 21 Sep. 1961. An LST was torpedoed and sunk by Chinese Republican torpedo boats off Quemoy on 25 Aug. 1958. LST 208 *Chung Shun* (ex-LST 993) is believed to have been lost, since a newly acquired LST has been numbered 208. Five of above (200, 202, 308, 313, 315) were acquired from the merchant service in 1955. LST 313 *Chung Kung* (ex-*Chung* ex-LST 945) was scrapped in 1956. LST 207 *Chung Cheng* reported to be scrapped in 1958. LST 213, 224 and 225 were transferred from the United States Navy in 1958.

I AGC Type

KAO HSIUNG (AGC 1)
Amphibious Force Flagship
It is reported that the amphibious force flagship AGC1 has been acquired, and named as above in 1964.

MEDIUM LANDING SHIPS



MEI KUN 1962, Official

18 Ex-U.S. LSM Type

241 MEI CHIN (ex-LSM 155) 251 MEI CHEN (ex-LSM —)
245 MEI HENG (ex-LSM 456) 252 MEI KUN (ex-LSM —)
248 MEI HO (ex-LSM 13) 253 MEI PING (ex-U.S.S. LSM —)
244 MEI PENG (ex-LSM 431) 254 MEI WEN (ex-LSM 472)
246 MEI HUNG (ex-LSM 442) 255 MEI HAN (ex-LSM 474)
247 MEI SUNG (ex-LSM 457) 256 MEI LO (ex-U.S.S. LSM 362)
243 MEI I (ex-LSM 285) Ex-LSM 422
249 MEI CHIEN (ex-LSM —) Ex-LSM 471
250 MEI HWA (ex-LSM —) Ex-LSM 478
Displacement: 743 tons standard (1,095 tons full load)
Dimensions: 196½ (w.l.), 203½ (o.a.)×34½×7½ feet
Guns: 2—40 mm. AA., 4—20 mm. AA.
Machinery: Diesel, 2 shafts, B.H.P.: 2,800=12 kts.
Complement: 59 (Mei Lo 6 officers and 46 men)

General
Mei Lo 242 (ex-LSM 157) was destroyed by Chinese Communist artillery and beached on Quemoy Island on 8 Sep. 1958. Mei Wen, 254, and Mei Han, 255, were transferred from the United States Navy at Seattle, Wn., on 6 Feb. 1959. LSM 422, LSM 471 and LSM 478 were also loaned to Nationalist China by the U.S.A. in 1959. Mei Lo 256 (ex-LSM 362) was transferred at Bremston, Wash. in May 1962.

Disposal
Lu Shan (ex-japanese LST No. 172), which went aground and was found to be beyond repair, is reported to have been removed from the effective list.

LANDING CRAFT



LIEN HUA

1963, Official

5 LSIL Type

264 LIEN CHENG (ex-LCI (M) 630) 261 LIEN CHU (ex-LCI (G) 233)
 265 LIEN HUA (ex-LCI (G) 631) 262 LIEN LI (ex-LCI (G) 417)
 263 LIEN SHENG (ex-LCI (G) 418)

Displacement: 227 tons standard (387 tons full load)
 Dimensions: 159×23½×5½ feet
 Guns: 2—20 mm. AA.
 Machinery: Diesel, 2 shafts. B.H.P.: 1,320=14 kts.
 Complement: 28

General

Former United States Landing Craft, Infantry (Gunboat) and Landing Craft, Infantry (Mortar). Armament varies. China (Taiwan) received ex-U.S. LSIL 818, 1017, 1092 from the United States under MDAP (they were formerly on loan to France from the U.S.A. for service in Indo-China) to be used only for cannibalization.

3 LSSL Type

271 LIEN CHIH (ex-U.S.S. LSSL 56) 272 LIEN JEN (ex-U.S.S. LSSL 81)
 273 LIEN YUNG (ex-U.S.S. LSSL 95)

Displacement: 227 tons standard (387 tons full load)
 Dimensions: 153 (w.l.), 158 (o.a.)×28½×5½ feet
 Guns: 6—40 mm. AA. (twin), 10 rocket launchers
 Machinery: G. M. diesels. 2 shafts. B.H.P.: 1,320=14.4 kts.
 Complement: 78

General

These ex-U.S. Navy LSSL's formerly LCS(L) 3, Landing Craft Support (Large) were transferred to China (Taiwan) at Yokosuka, Japan, on 19 Feb. 1954. China (Taiwan) received ex-U.S. LSSL 2 and 28 from the United States under MDAP (they were formerly on loan to France from the U.S.A. for service in Indo-China) to be used only for cannibalization.

30 LCU (ex-LCT) Type

405 HO CHANG (ex-LCT 512) 407 HO CHIH (ex-LCT)
 406 HO CHEN (ex-LCT 1145) 401 HO CHUN (ex-LCT 892)
 403 HO CHENG (ex-LCT 1143) 404 HO CHUNG (ex-LCT 849)
 402 HO CH'UNG (ex-LCT 1213)

Displacement: 143 tons standard (285 tons full load)
 Dimensions: 114½×32½×3½ feet
 Guns: 2—20 mm. AA.
 Machinery: Diesel. 3 shafts. B.H.P.: 675=10 kts.
 Complement: 11

General

Additional landing craft have been transferred, including 5 LCU under MDAP (craft formerly on loan to France from the U.S.A. for use in Indo-China). Those named so far are ex-LCU 290, 292, 638, 700, 1225, 1271, 1596, 1597, 1598, 1600 and 1601. In 1964 ex-LCU 1212, 1218, 1224, 1367, 1397, 1429 and 1452 were transferred by the U.S.A. under MAP.

SURVEYING SHIPS

362 YANG MING (ex-45 Yung Ting, ex-U.S.S. Lucid, AM 259)
 Displacement: 650 tons standard (945 tons full load)
 Dimensions: 180 (w.l.), 184½ (o.a.)×33×9½ (max.) feet
 Machinery: Diesels. 2 shafts. B.H.P.: 1,710=14.8 kts.

General

Former United States fleet minesweeper. Launched on 5 June 1943. Converted into a surveying ship.

266 LIEN CHING

General

Former United States landing craft of the LSIL type converted into a survey ship. See particulars above.

Disposals

The surveying ships Ching Tien, 361, and Chiao Shan, 861, were officially stricken from the list in 1963 (discarded).

PATROL CRAFT

521 HAI LI	541 CHIANG I	581 P'AO 101	633 P'AO 3
522 HAI NING	542 CHIANG YUNG	584 P'AO 104	634 P'AO 4
523 HAI YAO	543 CHIANG HSIU	587 P'AO 107	635 P'AO 5
524 HAI WEI	544 CHIANG TING	588 P'AO 108	636 P'AO 6
525 HAI AN	545 CHIANG MING	591 P'AO 111	637 P'AO 7
526 HAI CHING	546 CHIANG LIEN	592 P'AO 112	638 P'AO 8
	547 CHIANG P'ING	593 P'AO 113	639 P'AO 9
	548 CHIANG FENG	594 P'AO 114	640 P'AO 10
	549 CHIANG KUNG	595 P'AO 115	641 P'AO 11
	550 CHIANG LUN	596 P'AO 116	642 P'AO 12
YP 625	551 CHIANG CH'ENG	631 P'AO 1	643 P'AO 13
		632 P'AO 2	646 P'AO 16

6 Ex-HDML Type

681 FANG I	684 FANG SEU	686 FANG LIU
682 FANG SAN	685 FANG CHI	687 FANG PA

Displacement: 46 tons standard (54 tons full load)
 Dimensions: 72×15½×4½ feet
 Guns: 1—40 mm., 1—20 mm., 4 M.G.
 Machinery: 2 Diesels. B.H.P.: 320=11 kts.
 Complement: 14

General

Former harbour defence motor launches. Built in Great Britain in 1942-43. Fang 3 and Fang 8 were sunk in 1950.

2 MTB Type

FU CHOU (PT 511) HSUEH CHIH (PT 512)
 General
 Built by Mitsubishi Zosen Co., Japan in 1957. Armed with 18-inch torpedo tubes and 1—20 mm. AA. gun aft.

OILERS



OMEI

1963, Official

309 OMEI (ex-U.S.S. Maumee)

Displacement: 4,990 tons standard (14,500 tons full load)
 Dimensions: 475½ (o.a.)×56×10 (mean), 26½ (max.) feet
 Guns: 5—3 inch, 2—40 mm. AA., 8—20 mm. AA.
 Machinery: Diesel. 2 shafts. B.H.P.: 5,000=14 kts.
 Oil fuel: 820 tons

General

Built at Mare Island Yard, U.S.A. Capacity 7,850 tons. Launched on 17 Apr. 1915.

307 CHANG PEI (ex-U.S.S. Pecatonica, AOG 57)

Displacement: 1,850 tons light (4,335 tons full load)
 Measurement: 2,575 tons deadweight
 Dimensions: 292 (w.l.), 310½ (o.a.)×48½×15½ (max.) feet
 Guns: 4—3 inch d.p., 50 cal.
 Machinery: Diesel-electric. 2 shafts. B.H.P.: 3,300=14 kts.

General

Former U.S. petrol carrier of the "Patapsco" class. Built by Cargill, Inc., Savage, Minn. Laid down on 6 Dec. 1944. Launched on 17 Mar. 1945. Transferred to Taiwan China under MAP on 24 Apr. 1961 at Tsoying, Taiwan. Crew 124.

306 KUAI CHI (ex-Soviet Tuapse)

General

Petrol tanker. Captured in 1954. Commissioned in Nationalist Navy in Feb. 1956.

304 SZU MING (ex-U.S.S. YO 198)

Displacement: 1,400 tons full load
 Dimensions: 174 (o.a.)×32×15 feet
 Guns: 1—25 mm., 2—20 mm., 2 M.G.
 Machinery: Diesel. B.H.P.: 560=11 kts.

General

Built in U.S.A. in 1945 by Manitowoc S.B. Co., Wis. Capacity 6,570 barrels.

302 HSIN KAO (ex-Tai Hwa, ex-U.S.S. Towaliga, AOG 42)

Displacement: 700 tons standard (2,700 tons full load)
 Measurement: 1,453 tons deadweight
 Dimensions: 212½ (w.l.), 220½ (o.a.)×37×12½ feet
 Guns: 1—3 inch, 2—40 mm. AA., 3—20 mm. AA.
 Machinery: Diesel. 1 shaft. B.H.P.: 800=10 kts.

General

Ex-U.S. TI-M-A2 type, "Mettawee" class. Launched by East Coast Shipyards on 29 Oct. 1944. Sister ship Yu Chuan, No. 303 (ex-Wautanga, AOG 22, ex-Conrol, ex-U.S.S. Sakatonchee, YOG 52) and the oiler Ho Lan, No. 305 (ex-Polish oiler Praca) were scrapped in 1964.

TRANSPORTS

311 WULING (ex-Shirasaki)

Displacement: 950 tons
 Dimensions: 203×31½×10½ feet
 Guns: 1—3 inch, 1—40 mm. AA., 8—25 mm. AA., 4 M.G.
 Machinery: 2 diesels. B.H.P.: 600=15 kts.

General

Former Japanese. Refrigerated cargo ship. Destroyer hull.

313 TIEN CHU

316 TIEN TAI

315 CHIU HUA

317 CHUNG SHAN

HUEI FENG

General

Displacements and other particulars vary in individual ships. Tien Chu is ex-Polish cargo ship Prezedent Gottwald captured by China while trading with the Communists. Wu 1 (ex-No. 16), Kun Lun, 312 (ex-Hai Chi, ex-Japanese Kaiki), Nan Hu, 312 (ex-S.S. Tai Hui, ex-S.S. Steelmotor and Ex-Japanese No. 172 were discarded in 1963.

TUGS

342 TA WU (ex-Wu Kung, ex-Pei Chi No. 1, ex-LT) 343 TA MING (ex-LT 300)

Displacement: 570 tons light (967 tons full load)
 Dimensions: 149 (o.a.)×33×15 feet
 Guns: 1—40 mm., 2—20 mm.
 Machinery: Reciprocating. Oil fuel. H.P.: 1,200=12 kts.

General

Built in U.S.A. in 1943, Ta Ch'ing reported decommissioned on 1 June 1951.

345 TA YU (ex-LT 310)

347 TA SHUEH (ex-U.S.S. Tonkawa, ATA 176)

Displacement: 534 tons standard (835 tons full load)
 Dimensions: 133½ (w.l.), 143 (o.a.)×33½×13½ feet
 Guns: 2—25 mm., 2 M.G. (Ta Shueh 1—3 inch)
 Machinery: Diesel-electric. H.P.: 1,500=12.5 kts.

General

Ta Yu is a former U.S. Army tug. Ta Shueh is a former U.S. Navy tug of the "Marikopa" class built by Livingston S.B. Co., Orange, Texas, completed on 15 Aug. 1944, and transferred on 5 Apr. 1962. (There are also the small harbour tugs YTL 427, YTL 428, YTL 454, YTL 584 and YTL 585 transferred by the U.S.A. in 1963-64.) Pu To, 341 (ex-ATR 26) was discarded in 1963, and Ta Hung, No. 334 (ex-LT 530) in 1964.

TANZANIA

COASTAL PATROL BOATS

4 Ex-German KW Type

KW 4

KW 5

KW 9

KW 10

General

Transferred by West Germany in 1965. See full particulars on page 106, column 2.

ROYAL THAI NAVY

Administration

Commander-in-Chief of the Navy:
Admiral M. C. Kanchitbhol Abhakorn.

Chief of the Naval Staff:
Admiral Thavil Rayananon

Personnel

Naval Attaché in London:
Captain Prasert Choön-ngarm.

Naval Attaché in Washington:
Captain Udom Pumhirun, R.T.N.

1965: Navy, 18,000 (2,000 officers and 16,000 ratings)

Marine Corps, 3,330 (130 officers and 3,200 men)

DESTROYER ESCORTS

Ex-U.S. DE Type
1 "Bostwick" Class

PIN KLAO (ex-U.S.S. Hemminger, DE 746)

Pennant No.: DE 3 (ex-1)
Builders: Western Pipe & Steel Co.
Launched: 12 Sep. 1943
Completed: 30 May 1944

Displacement: 1,240 tons standard (1,900 tons full load)
Dimensions: 306 (o.a.)×36½×14 feet
Guns: 3—3 inch, 50 cal. d.p.; 6—40 mm. AA.
A/S weapons: 8 D.C.T.
Machinery: G.M. diesels with electric drive. 2 shafts. B.H.P.: 6,000=20 kts.
Oil fuel: 300 tons
Radius: 11,500 miles at 11 kts.
Complement: 220

General
Former United States patrol vessel (destroyer escort) of the DE type, "Bostwick" class. Transferred from the United States Navy to Thailand at New York Naval



PIN KLAO

1960, Royal Thai Navy, Official

Shipyards in July 1959 under the Mutual Defence Assistance Programme and given the new Thai name *Pin Klao*.

Armament
The 3—21 inch torpedo tubes were removed, and the 4—20 mm. AA. guns were replaced by 4—40 mm. AA.

FRIGATES

Ex-U.S. PF Type
2 "Prasae" Class

PRASAE (ex-U.S.S. Gallup, PF 47)
TAHCHIN (ex-U.S.S. Glendale, PF 36)

Name:	Prasae	Tahchin
Pen. No.:	2	1
Builders:	Consolidated Steel Corporation, Los Angeles	Consolidated Steel Corporation, Los Angeles
Laid down:	18 Aug. 1943	6 Apr. 1943
Launched:	17 Sep. 1943	28 May 1943
Completed:	29 Feb. 1944	1 Oct. 1943
Displacement:	1,430 tons standard (2,100 tons full load)	
Dimensions:	304 (o.a.)×37½×13½ feet	
Guns:	3—3 inch, 50 cal. d.p.; 2—40 mm. AA.; 9—20 mm. AA.	
A/S weapons:	8 D.C.T.	
Machinery:	Triple expansion. 2 shafts. I.H.P.: 5,500=19 kts.	
Boilers:	2 small water tube 3-drum type	
Oil fuel:	685 tons	
Radius:	9,500 miles at 12 kts.	
Complement:	180	

General
Former United States patrol frigates of the "Tacoma" class, or PF type. Delivered to the Royal Thai Navy on



PRASAE

1965, Royal Thai Navy, Official

29 Oct. 1951. They were of similar design to the British frigates of the "River" class.

Photographs
A photograph of *Tahchin* appears in the 1953-54 to 1964-65 editions.

1 Ex-British "Flower" Class

BANGPAKONG (ex-Gondwana, ex-H.M.S. Burnet)

Pennant No.: PF 4
Builders: Ferguson Bros. Ltd., Port Glasgow
Laid down: 2 Nov. 1942
Launched: 31 May 1943
Completed: 23 Sep. 1943

Displacement: 1,060 tons standard (1,350 tons full load)
Dimensions: 193 (pp.), 203½ (o.a.)×33×14½ feet
Guns: 1—3 inch, 50 cal. d.p.; 7—20 mm. AA.
A/S weapons: 4 D.C.T.
Machinery: Triple expansion. I.H.P.: 2,880=16 kts.
Boilers: 2, of 3-drum type
Oil fuel: 282 tons
Radius: 4,800 miles at 12 kts.
Complement: 100

General
Former British corvette (later reclassified as a frigate) of the "Flower" class which served in the Indian Navy before she was transferred to the Royal Thai Navy.



BANGPAKONG

1955, Royal Thai Navy, Official

Sister ship *Prasae* (ex-*Sind*, ex-*Betong*) was lost during the Korean War on 13th January, 1951.

Gunnery
The 4 inch gun was replaced by a 3 inch, 50 calibre, dual purpose gun.

Frigates —continued

I Sloop Type

MAEKLONG

Pennant No.: 3
Builders: Uraga Dock Co., Japan
Ordered: 1934
Laid down: 1936
Launched: 27 Nov. 1936
Completed: June 1937
Displacement: 1,400 tons standard (2,000 tons full load)
Dimensions: 269×34×10½ feet
Guns: 4—4.7 inch, 2—40 mm. AA.
Machinery: Triple expansion. 2 shafts. I.H.P.: 2,500=14 kts.
Boilers: 2 water-tube
Oil fuel: 487 tons
Radius: 8,000 miles at 12 kts.
Complement: 155 (as training ship)



MAEKLONG

1952, Official

General
Designed as a dual-purpose sloop and torpedo boat. Fitted for minesweeping. Employed as a training ship. May be disposed of in the near future. The 4—18 inch torpedo tubes were removed. Sister ship *Tachin* was heavily damaged during the Second World War on 1 June 1945 and eventually scrapped.

ESCORT MINESWEEPER

I Ex-British "Algerine" Class

PHOSAMPTON (ex-H.M.S. *Minstrel*)

Pennant No.: MSF 1
Builders: Redfern Construction Co.
Laid down: 1943
Launched: 5 Oct. 1944
Completed: 1945
Displacement: 1,040 tons standard (1,335 tons full load)
Dimensions: 225 (o.a.)×35½×10½ feet
Guns: 1—4 inch, 3—20 mm. AA.
A/S weapons: 2 D.C.T.
Machinery: Triple expansion. 2 shafts. I.H.P.: 2,000=16 kts.
Boilers: 2, of 3-drum type
Oil fuel: 270 tons
Radius: 5,000 miles at 10 kts., 3,000 miles at 15 kts.
Complement: 103



PHOSAMPTON

1965, Royal Thai Navy, Official

General
Former British "Algerine" class minesweeper of ocean-going type capable of fleet sweeping and escort duties.

ARMoured GUNBOATS

2 Coast Defence Type

Name:	RATANAKOSINDRA	SUKOTHAI
Builders:	Armstrong, Newcastle	Vickers Armstrong
Laid down:	29 Sep. 1924	Dec. 1928
Launched:	21 Apr. 1925	19 Nov. 1929
Completed:	Aug. 1925	Dec. 1930

Displacement: 886 tons standard (1,000 tons full load)
Dimensions: 160 (pp.), 173 (o.a.)×37×10½ feet
Guns: 2—6 inch, 4—3 inch AA., 2—40 mm. AA., 2—20 mm. AA.
Armour: Side 2½" (amidships), 1½" ends, barrette rings, 2½"; C. T. 4½" Upper deck, 1½"—3"
Machinery: Triple expansion. 2 shafts. I.H.P.: 850=12 kts.
Boilers: 2 oil-burning water-tube, working pressure 225 lbs. per sq. in.
Oil fuel: 96 tons
Radius: 2,000 miles at 10 kts.
Complement: 103



SUKOTHAI

1962, Royal Thai Navy, Official

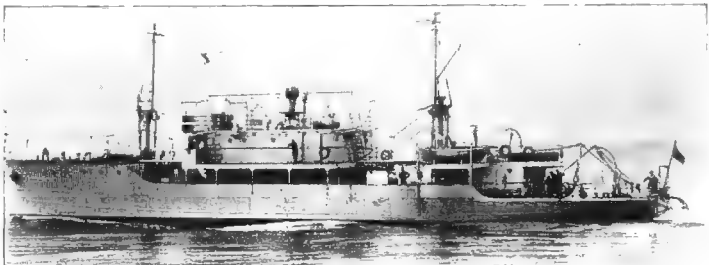
General
A photograph of *Ratanakosindra* appears in the 1950-51 to 1961-62 editions. Both to be discarded.

COASTAL MINELAYERS

2 "Bangrachan" Class

	BANGRACHAN (No. 1)	NHONG SARHAI (No. 2)
Displacement:	368 tons standard (408 tons full load)	
Dimensions:	160½×26×7½ feet	
Guns:	2—3 inch AA., 2—20 mm. AA.	
Mines:	142 capacity	
Machinery:	Burmeister & Wain diesels. 2 shafts. B.H.P.: 540=12 kts.	
Oil fuel:	18 tons	
Radius:	2,700 miles	
Complement:	55	

General
Built by Cantieri Riuniti dell'Adriatico, Monfalcone. Launched in 1936 and on 22 July, 1936, respectively.
Photographs
A photograph of *Bangrachan* appears in the 1956-57 to 1960-61 editions.



NHONG SARHAI

Added 1961, Giorgio Arra

PATROL VESSELS



CHANDHABURI

1965, Royal Thai Navy, Official

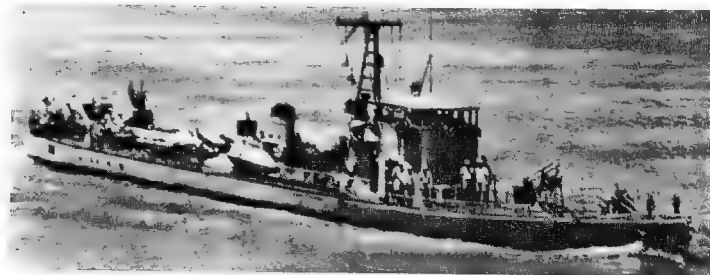
7 Trad Class

CHANDHABURI (No. 22) 16 Dec. 1936
CHUMPHONE (No. 31) 18 Jan. 1937
PATTANI (No. 13) 16 Oct. 1936

PUKET (No. 12) 28 Sep. 1935
RAYONG (No. 23) 11 Jan. 1937
SURASDRA (No. 21) 28 Nov. 1936
TRAD (No. 11) 26 Oct. 1935

Displacement: 318 tons standard (470 tons full load)
Dimensions: 219 (pp.), 223 (o.a.) \times 21 \times 7 feet
Guns: 3—3 inch AA., 1—40 mm. AA.; 2—20 mm. AA.
Tubes: 4—18 inch (2 twin)
Machinery: Parsons geared turbines, 2 shafts. H.P.: 9,000=31 kts.
Boilers: 2 Yarrow
Oil fuel: 102 tons
Radius: 1,700 miles at 15 kts.
General Complement: 70

Designed as torpedo boats, *Puket* and *Trad* were laid down on 8 Feb. 1935 by Cantieri Riuniti dell'Adriatico, Monfalcone, for delivery by the end of 1935. Launch dates above. Armament was supplied by Vickers-Armstrongs Ltd. First boat reached 32.54 kts. on trials with 10,000 H.P. All delivered by summer of 1937. The 2 single 18 inch torpedo tubes and the 4—8 mm. guns were removed. Pennant numbers 5, 7, 3, 2, 6, 4 and 7, respectively. A photograph of *Trad* appears in the 1956-57 to 1964-65 editions. *Chalaburi* and *Sangkha* were sunk in action with a French squadron on 17 Jan. 1941.



SATTAHIB

1965, Royal Thai Navy, Official

4 "Sattahib" Class

KANTANG (No. 7) KLONGYAI (No. 5) SATTAHIB (No. 8) TAKBAI (No. 6)

Displacement: 110 tons standard (135 tons full load)
Dimensions: 131 $\frac{1}{2}$ \times 15 $\frac{1}{2}$ \times 4 feet
Guns: 1—3 inch, 1—20 mm.
Tubes: 2—18 inch
Machinery: Geared turbines, 2 shafts. S.H.P.: 1,000=19 kts.
Boilers: 2 water-tube
Oil fuel: 18 tons
Radius: 480 miles
General Complement: 31

Sattahib was built by the Royal Thai Naval Dockyard, Bangkok, laid down on 21 Nov. 1956, launched on 28 Oct. 1957, and completed in 1958. The other three were built by Ishikawajima Co., Japan, all launched on 26 Mar. 1937 and completed on 21 June 1937. A photograph of *Klongyai* appears in the 1956-57 to 1964-65 editions.



LONGLOM

1965, Royal Thai Navy, Official

7 Ex-U.S. PC Type

DIULOM (ex-PC 1253) PHALI (ex-PC 1185) SUKEIP (ex-PC 1218)
LONGLOM (ex-PC 570) SARASIN (ex-PC 495) THAYANCHON (ex-PC 575)
TONGPLIU (ex-PC 616)

Displacement: 280 tons standard (400 tons full load)
Dimensions: 174 (o.a.) \times 23 $\frac{1}{2}$ \times 6 feet
Guns: 1—3 inch AA., 1—40 mm. AA., 5—20 mm. AA.
Machinery: Diesel, 2 shafts. B.H.P.: 3,600=19 kts.
Oil fuel: 60 tons
Radius: 6,000 miles at 10 kts.
General Complement: 62 to 71, *Sukeip* 69 (10 officers, 59 men)

Former United States steel submarine chasers of the PC type. Launched in 1941-43. Used as patrol vessels. Pennant numbers PC 7, 8, 4, 1, 5, 2 and 6, respectively. *Khamransin* (ex-PC 609) was removed from the effective list in 1956. A photograph of *Sukeip* appears in the 1956-57 to 1964-65 editions.

SURVEYING VESSEL

CHANTHARA
CHANTHARA

1962, Royal Thai Navy, Official

Displacement: 870 tons standard (996 tons full load)
Dimensions: 229 $\frac{1}{2}$ (o.a.) \times 34 $\frac{1}{2}$ \times 10 feet
Guns: 1—20 mm. AA.
Machinery: 2 diesels, 2 shafts. B.H.P.: 1,000=13.25 kts.
Boilers: 10,000 miles (cruising)
Complement: 69

General

Built by C Melchers & Co., Bremen, Germany. Laid down on 27 Sep. 1960. Launched on 17 Dec. 1960. Can also be used as training ship and yacht.

COASTAL MINESWEEPERS



LADYA

1964, Royal Thai Navy, Official

4 New Construction

BANKEO (ex-U.S.S. MSC 303)

LADYA (ex-U.S.S. MSC 297)
MSC 301 MSC 313

Displacement: 362 tons full load
Dimensions: 145 (o.a.) \times 27 \times 8 $\frac{1}{2}$ feet
Guns: 2—20 mm. AA.
Machinery: 2 G.M. diesels, 2 shafts. B.H.P.: 800=13 kts.
General Complement: 50

General

Built by Peterson Builders Inc., Sturgeon Bay, Wisc., (*Ladya*) and Tacoma Boat-building Co. Tacoma, Wash. (MSC 301) *Ladya* was transferred at Boston, Mass., on 14 Dec. 1963, and *Bankeo* on 9 July 1965.

Disposals

Of the ex-U.S. YMS type, *Bankeo* (ex-YMS 334), *Ladya* (ex-YMS 138) and *Ta Dindeng* (ex-YMS 21) were removed from the effective list in 1964.

PATROL BOATS



SC 32

1959, Royal Thai Navy, Official

2 Ex-U.S. SC Type

SC 7 (ex-SC 31, ex-U.S. SC 1632)

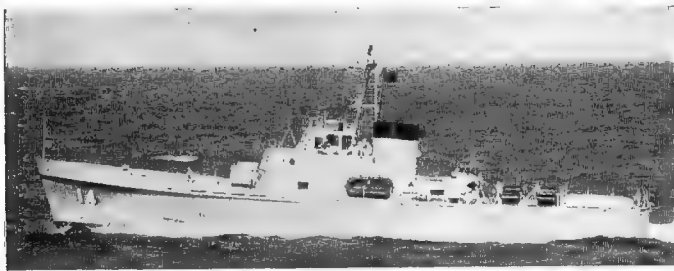
SC 8 (ex-SC 32, ex-U.S. SC 1633)

Displacement: 110 tons light (125 tons full load)
Dimensions: 111 \times 17 \times 6 feet
Guns: 1—40 mm., 3—20 mm.
A/S weapons: Depth Charges, Mousetrap
Machinery: High-speed diesel=18 kts.

General

Former United States wooden submarine chasers of the SC type. Built by South Coast Co., Newport Reach, California, in 1954-55. Transferred by the U.S.A. Sister ship SC 33 (ex-SC 1634) was officially scrapped on 8 March 1962.

COASTGUARD VESSELS



CGC 14

Royal Thai Navy, Official

4 Ex-U.S. CGC Type

CGC 3 (ex-CGC 13) CGC 4 (ex-CGC 14) CGC 5 (ex-CGC 15) CGC 6 (ex-CGC 16)

Displacement: 95 tons
 Dimensions: 95×20½×5 feet
 Guns: 1—20 mm. AA.
 A/S weapons: 2 D.C. racks, 2 mousetraps
 Machinery: 4 diesels, 2 shafts. B.H.P.: 2,200=21 kts.
 Boilers: 1,500 miles cruising range
 Complement: 15

General
 U.S. coastguard cutters transferred from the United States to Thailand in 1954. Similar to the cutters built for U.S.C.G. by the U.S. Coast Guard, Curtis Bay, Maryland in 1953. Cost £475,000 each.



CGC 12

1959, Royal Thai Navy, Official

2 Ex-U.S. YP Type

CGC 1 (ex-CGC 11)

CGC 2 (ex-CGC 12)

Displacement: 44.5 tons
 Dimensions: 83½×16×4½ feet
 Guns: 1—20 mm. AA.
 A/S weapons: 2 D.C. racks, 2 mousetraps
 Machinery: 2 Viking petrol engines. B.H.P.: 1,300=20.5 kts.

General
 Former U.S. Coast Guard cutters of the YP class. Of wooden hulled construction.

Disposals
 Of the six motor patrol boats of the coastal type, MPB 2, MPB 4, MPB 5 and MPB 6 were removed from the effective list in January 1961, and MPB 1 and MPB 3 in 1956.

Of the five motor torpedo boats (coastal motor boats) of the British Thornycroft type CMB 8, CMB 10 and CMB 12 were removed from the effective list in 1956, and CMB 9 and CMB 11 were stricken off in 1960.

TRAINING SHIP (Ex-Fleet Minesweepers)



CHOW PRAYA

1956, Royal Thai Navy, Official

1 Ex-British "Racecourse" Class

CHOW PRAYA (ex-H.M.S. Havant)

Displacement: 680 tons standard (840 tons full load)
 Dimensions: 220×28½×7½ feet
 Guns: 2—57 mm. AA., 1—40 mm. AA.
 Machinery: Triple expansion, 2 shafts. I.H.P.: 2,200=16 kts.
 Boilers: Yarrow, converted to burn oil
 Oil fuel: 160 tons
 Radius: 1,750 miles at 15 kts.
 Complement: 65

General
 Former British fleet minesweeper of the "Racecourse" class. Built by Eltringhams, South Shields. Launched in Nov. 1918. Purchased in 1923 and reconstructed by John I. Thornycroft & Co. Ltd., Southampton. Guns are interchangeable for training. This ship is now very old and worn out. She is no longer on the Navy list and is likely to be discarded in the near future.

LANDING SHIPS



CHANG

1965, Royal Thai Navy, Official

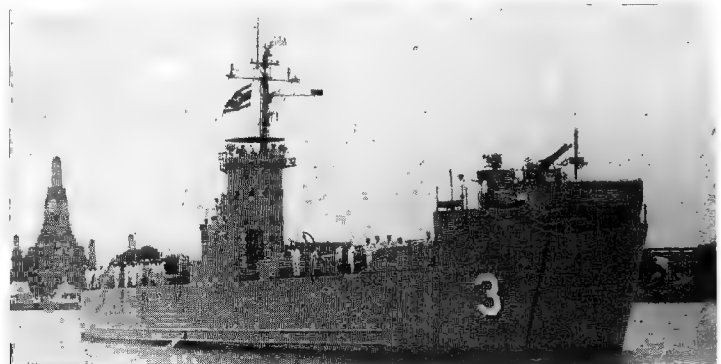
2 Ex-U.S. LST Type

ANGTHONG LST 1

CHANG (ex-U.S.S. Lincoln County, LST 898) LST 2

Displacement: 1,625 tons standard (4,080 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.)×50×14 feet
 Guns: 6—40 mm., 4—20 mm.
 Machinery: G.M. diesels, 2 shafts, B.H.P.: 1,700=11 kts.
 Complement: 80

General
 Angthong is a former United States tank landing ship of the LCT type employed as a transport. Chang was transferred to Thailand in 1962; she was built by Dravo Corp., Neville Island, Pittsburg, Pa., laid down on 15 Oct. 1944, launched on 25 Nov. 1944 and completed on 29 Dec. 1944. A photograph of Angthong appears in the 1956-57 to 1964-65 editions.



KRAM

1965, Royal Thai Navy, Official

3 Ex-U.S. LSM Type

GUT (ex-LSM) LSM 5 PAI (ex-LSM) LSM 2 KRAM (ex-U.S.S. LSM 469) LSM 3

Displacement: 743 tons standard (1,095 tons full load)
 Dimensions: 196½ (w.l.), 203½ (o.a.)×34½×8½ feet
 Guns: 2—40 mm. AA.
 Machinery: Diesel direct drive, 2 shafts. B.H.P.: 2,800=12.5 kts.
 Complement: 55

General
 Former United States landing ship of the LCM, later LSM (Medium Landing Ship), type. Kram was transferred to Thailand under MAP at Seattle, Wash. on 25 May 1962; she was built by Brown Shipbuilding Co., Houston, Tex., laid down on 27 Jan. 1945, launched on 17 Feb. 1945, and completed on 17 Mar. 1945. A photograph of Gut appears in the 1956-57 to 1964-65 editions.

LANDING CRAFT



SATAKUT

1957, Royal Thai Navy, Official

2 Ex-U.S. LCI Type

PRAB (ex-LCI) LCI 1

SATAKUT (ex-LCI) LCI 2

Displacement: 230 tons standard (387 tons full load)
 Dimensions: 157×23×6 feet
 Guns: 2—20 mm. AA.
 Machinery: Diesel, 2 shafts. B.H.P.: 1,320=14 kts.
 Complement: 54

General

Former United States landing craft of the LCI (Infantry Landing Craft) type. A photograph of Prab appears in the 1957-58 and earlier editions.

6 LCU Ex-U.S. LCT (6) Type

ARDANG (LCU 10)
KOLUM (LCU 12)MATAPHON (LCU 8)
PHETRA (LCU 11)RAWI (LCU 9)
TALIBONG (LCU 13)

Displacement: 134 tons standard (279 tons full load)
 Dimensions: 112×32×4 feet
 Guns: 2—20 mm. AA.
 Machinery: Diesel, 3 shafts. B.H.P.: 675=10 kts.
 Complement: 37

General

Former United States landing craft of the LCT(6) type. Employed as transport ferries. A photograph of Mataphon appears in the 1950-51 to 1961-62 editions.

TRANSPORTS

SICHANG AKL 1
Displacement: 815 tons standard
Dimensions: 160×28×16 feet
Machinery: Diesel, 2 shafts. B.H.P.: 550=16 kts.
Complement: 30
General
Built by Harima Co., Japan. *Sichang* was launched on 10 Nov. 1937. Completed in Jan. 1938. A photograph of this ship appears in the 1953-54 to 1959-60 editions. Sister ship *Pangan* was deleted from the list in 1962.

KLED KEO A 7
General
Reefer ship reported to be operating as a naval auxiliary and transport.

Disposals
The transport *Suriya* (ex-*Thalang*) was scrapped on 10 May 1962. *Chang* (ex-*Vides Kichkar*, ex-*Buk*, ex-*Lycidas*) was officially removed from the list in 1962, *Kied Keo*, *Chuang*, *Kram* and *Samed* in Jan. 1961, and *Chart Narwee*, *Klat Narwee* and *Winaw Narwee* in 1958.

OILERS

CHULA AO 2
Displacement: 2,395 tons standard
Dimensions: 328×43½×25 feet
Machinery: Steam turbine
General
This tanker and *Matra* (see below) were acquired for naval oiling and supply duties.

MATRA AO 3
Displacement: 4,744 tons
Dimensions: 328×45½×20 feet
Machinery: Steam turbine
General
Employed as a freighting and fleet replenishment tanker and naval supply ship.



SAMUI 1956, Royal Thai Navy, Official

SAMUI YO 4
Displacement: 422 tons standard
Dimensions: 174½×32×15 feet
Machinery: Diesel, 2 shafts. B.H.P.: 600=8 kts.
Complement: 49
General
Small tanker of the ex-YOG type. Employed as a fleet auxiliary attendant oiler.

PRONG
Displacement: 150 tons standard
Dimensions: 95×18×7½ feet
Machinery: Diesel. B.H.P.: 150=10 kts
Complement: 14
General
Launched in 1938. Employed as a small naval auxiliary servicing tanker.

WATER CARRIERS

CHUANG
Displacement: 305 tons standard (485 tons full load)
Dimensions: 98×18×7½ feet (official figures)
Machinery: G.M. diesel. B.H.P.: 500=11 kts.
Complement: 29
General
Built by the Royal Thai Naval Dockyard, Bangkok. Launched on 14 Jan. 1965.

CHAN YW 6
Displacement: 355 tons standard
Dimensions: 139½×24×10 feet
Machinery: Diesel. Speed=6 kts.
General
A photograph of this ship appears in the 1956-57 to 1959-60 editions.

TUGS

SAMAESAN (ex-Empire Vincent)
Displacement: 503 tons (full load)
Dimensions: 105×26½×13 feet
Machinery: Triple expansion. I.H.P. 850=10.5 kts.
Complement: 27
General
Built by Cochrane & Sons Ltd., Selby, Yorks., England. A photograph appears in the 1957-58 and earlier editions. Pennant No. YTB 7.

RANG KWEN
Displacement: 586 tons standard
Dimensions: 162½×31½×13 feet
Machinery: Triple expansion steam engine. Speed=10 kts.
General
This ship is not employed as a tug but as a mine countermeasures support ship (MCS), Pennant No. MCS 11.

Minor Tugs
KLUENG BADAN and **MARN VICHAI**. Displacement: 63 tons standard; Dimensions: 64½×16½×6 feet; Machinery: Diesel. Speed=8 kts.
RAD. Displacement: 52 tons standard; Dimensions: 60½×17½×5 feet; Machinery: Diesel. Speed=6 kts.

TOGO

It is reported that Togo, which proclaimed independence on 27 April 1960, has acquired 3 steel 100 ft. motor patrol boats and 1 steel 95 ft. river gunboat and may have in the near future 1 steel 130 ft. patrol vessel.

TRINIDAD & TOBAGO

PATROL CRAFT



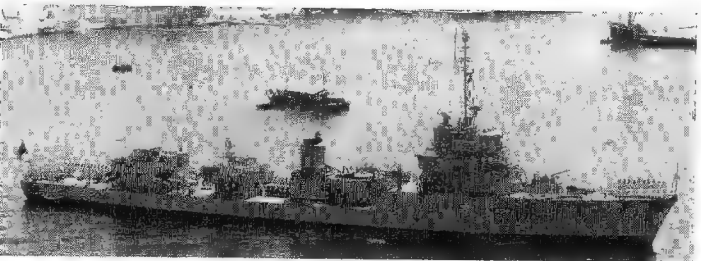
TRINITY 1965, courtesy Vosper Ltd., Builders

2 Vosper Type

COURLAND BAY
Displacement: 96 tons standard (109 tons full load)
Dimensions: 103 (o.a.)×19½×5½ feet
Guns: 1—40 mm. Bofors
Machinery: 2 intercooled 12-cyl. Vee-form Paxman Ventura YJCM turbocharged diesels. B.H.P.: 2,800=25 kts. (max.)
Oil fuel: 18 tons
Radius: 1,800 miles at 15 kts.
Complement: 23 (3 officers, 20 ratings)
General
Designed and built by Vosper Limited, Portsmouth. Of steel construction with aluminium alloy superstructure. Generally similar to the ten patrol craft designed and built by Vosper for the Royal Malaysian Navy, and the three for the Kenya Navy. Up-to-date radar and navigation equipment is fitted, and the boats are air-conditioned throughout except for the engine room. Vosper roll-damping equipment is fitted for improved sea-keeping and greater efficiency and comfort of the crews. *Trinity* was launched on 14 Apr. 1964. Both were commissioned at Portsmouth on 20 Feb. 1965. *Trinity* is named after Trinity Hills, so named by Columbus on making his landfall in 1498, and *Courland Bay* after a bay in Tobago where a settlement was founded by the Duke of Courland in the 17th century.
(Trinidad & Tobago Coast Guard:—125 personnel. Three 40 ft. and one 60 ft. patrol craft, all 18 kts.)

TUNISIA

CORVETTE (Aviso)



DUSTUR 1964, A. & J. Pavia

DUSTUR (ex-Chevreuil, F 735) E 17
Displacement: 647 tons standard (920 tons full load)
Dimensions: 257×28½×10½ feet
Guns: 1—4.1 inch, 1—40 mm., 6—20 mm.
A/S weapons: 4 D.C.T., 2 D.C. racks
Machinery: Sulzer diesels. 2 shafts. B.H.P.: 4,000=20 kts.
Oil fuel: 100 tons
Radius: 10,000 miles at 9 kts. 5,200 miles at 15 kts.
Complement: 100 (8 officers, 92 men)
General
Built at Lorient Dockyard. Laid down in Apr. 1937, launched on 17 June 1939 and completed in Oct. 1939. Transferred from the French Navy on 13 Oct. 1959 and renamed. Sister ship of *El Lahiq* (ex-*Chamois*) in the Moroccan Navy.

PATROL CRAFT (Vedette de Port)



ISTIQLAL Ex-VC 11

ISTIQLAL (ex-VC 11, P 761)
Displacement: 75 tons standard (82 tons full load)
Dimensions: 104½×15½×5½ feet
Guns: 2—20 mm. AA.
Machinery: 2 Mercedes-Benz diesels. 2 shafts. B.H.: 2,700= 28 kts.
Radius: 1,500 miles at 15 kts.
Complement: 15
General
Seaward defence motor launch of the VC type. Completed in 1958. Built by Lürssens in Germany. Transferred from the French Navy on 22 Sep. 1959.

TURKEY

Administration

Commander-in-Chief, Turkish Naval Forces:
Oramiral (Senior Admiral) Necdet Uran

Chief of Staff, Turkish Naval Forces:
Tümamiral (Vice-Admiral) Turgut Özel

Commander of the Turkish Fleet:
Koramiral (Admiral) Bahattin Özülker

Naval Attaché in London:
Captain K. Sevindik

Naval Attaché in Washington:
Captain Hasan Yumuk

Personnel

1965: 2,200 officers and 35,000 ratings

Mercantile Marine

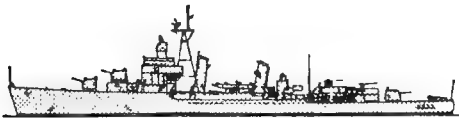
Lloyd's Register of Shipping:
294 vessels of 680,239 tons gross

Silhouettes

Scale: 150 ft.=1 inch.



ALP ARSLAN class



GELIBOLU, GIRE SUN



CANDARLI Class



GAZIANTEP, GEMLİK

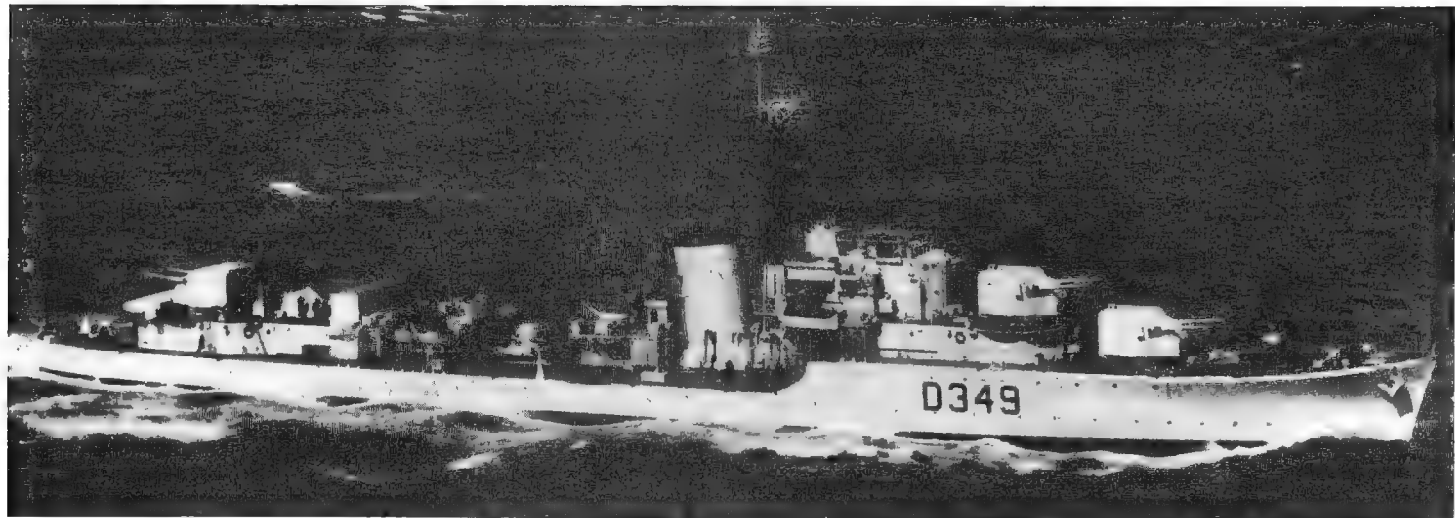


GAYRET



ALANYA Class

DESTROYERS



MAREŞAL FEVZİ ÇAKMAK

1964, Turkish Navy, Official

Ex-British "Milne" Type 4 "Alp Arslan" Class	NATO Pennant No.
ALP ARSLAN (ex-H.M.S. Milne)	D 348
KILIÇ ALI PAŞA (ex-H.M.S. Matchless)	D 350
MAREŞAL FEVZİ ÇAKMAK (ex-H.M.S. Marne)	D 349
PIYALE PAŞA (ex-H.M.S. Meteor)	D 351

Builders	Laid down	Launched	Completed
Scotts' Shipbuilding & Engineering Co. Ltd., Greenock.	24 Jan. 1940	30 Dec. 1941	6 Aug. 1942
Alex. Stephen & Sons Ltd., Govan, Glasgow.	14 Sep. 1940	4 Sep. 1941	26 Feb. 1942
Vickers Armstrongs, Ltd., Newcastle-on-Tyne	23 Oct. 1939	30 Oct. 1940	2 Dec. 1941
Alex. Stephen & Sons Ltd., Govan, Glasgow.	14 Sep. 1940	3 Nov. 1941	12 Aug. 1942

Displacement: 2,015 tons standard (2,840 tons full load)

Dimensions: 354 (pp.), 362½ (o.a.)×36½×16½ (max.) feet

Guns: 6—4.7 inch, 6—40 mm. Bofors AA. (one twin, four singles), 2—3 pdr. (saluting)

Tubes: 4—21 inch

A/S weapons: 1 triple-barrelled depth charge mortar (Squid)

Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 48,000=36 kts. (designed)

Boilers: 2 Admiralty 3-drum type

Oil fuel: 500 tons

Radius: 1,700 miles at 20 kts.

Complement: 240

General

Former British "Milne" class destroyers, one of the most successful and handsome types which ever served in the Royal Navy. The first British destroyers to have three power worked turrets. Transferred to Turkey under an agreement signed in Ankara on 16 Aug. 1957. Nominally handed over to the Turkish Navy at Portsmouth on 29 June 1959 after refit in British shipyards, where the after tubes and secondary armament were removed and replaced by deckhouse. Squid and Bofors. Renamed after famous generals and 16-18th century admirals.

Photographs

A photograph of Alp Arslan appears in the 1959-60 to 1961-62 editions and of Piyale Rosa in the 1959-60 to 1963-64 editions.



KILIÇ ALI PAŞA

1962, A. and J. Pavia

Disposal of Older Destroyers

Gayret was officially deleted from the effective list in 1965. Demishisar, Muavenet and Sultanhisar were discarded in 1960, and Tinaztepe and Zafer in 1957.

Battle Cruiser

The very old Turkish (former German) battle cruiser Yavuz (ex-Goeben) was decommissioned in 1960. See full particulars, photograph, plan and elevation drawings, and silhouette in the 1959-60 and earlier editions.

Destroyers—continued

4 "Gelibolu" Class

Displacement: 1,700 tons standard (2,800 tons full load)
Dimensions: 341 (w.l.), 348½ (o.a.)×36×18 (max.) feet
Guns: *Gelibolu, Giresun*: 3—5 inch, 38 cal., 4—3 inch AA.
Gaziantep, Gemlik: 4—5 inch, 38 cal.; 4—40 mm. AA.
Tubes: 5—21 inch
A/S weapons: 2 Hedgehogs, homing torpedoes, 4 D.C.T.
Machinery: General Electric geared turbines. 2 shafts. S.H.P.: 50,000=37 kts.
Boilers: 4 Babcock & Wilcox
Oil fuel: 600 tons
Radius: 5,000 miles at 15 kts.
Complement: 250

General
Former U.S. "Gleaves" class destroyers, *Gelibolu* and *Giresun* transferred on 29 Apr. 1949. *Gaziantep* and *Gemlik* in 1950. Modernised in U.S. in 1957-58 being fitted with tripod foremast and raised bridge and "X" 5-inch gun, Bofors and Oerlikons in *Gelibolu* and *Giresun* replaced by four 3 inch AA. guns. Photograph of *Giresun* in the 1959-60 to 1963-64 editions.



GEMLIK

1964, Turkish Navy, Official

Name	No.	Builders	Laid down	Launched	Completed
GAZIANTEP (ex-Lansdowne)	D 344	Federal S.B. & D.D. Co., Port Newark	July 41	20 Feb. 42	29 Apr. 42
GELIBOLU (ex-Buchanan)	D 346	Federal S.B. & D.D. Co., Port Newark	11 Feb. 41	22 Nov. 41	21 Mar. 42
GEMLIK (ex-Lardner)	D 347	Federal S.B. & D.D. Co., Port Newark	July 41	20 Mar. 42	13 May 42
GIRESUN (ex-McCalla)	D 345	Federal S.B. & D.D. Co., Port Newark	July 41	20 Mar. 42	27 May 42

MINELAYER

I New Construction

NUSRET

Displacement: 1,880 tons standard
Dimensions: 246 (pp.), 252½ (o.a.)×41×11 feet
Guns: 4—3 inch dual purpose (2 twin mountings)
Mines: 400 capacity
Machinery: G.M. diesels, 2 shafts. B.H.P.: 4,800=18 kts.
Complement: 130

General
A new type of minelayer of special Scandinavian-NATO design. Built at Frederikshaven Dockyard, Denmark. Laid down in 1962, launched in 1964, and completed in 1965. Commissioned on 16 Sep. 1964 at Copenhagen. Pemant No. N 108.



NUSRET

1965, Turkish Navy, Official

SUBMARINES

10 "Gur" Class

BIRINCI INÖNÜ (ex-U.S.S. Brill, SS 330)
CANAKKALE (ex-U.S.S. Bumper, SS 333)
CERBE (ex-U.S.S. Hammerhead, SS 364)
GÜR (ex-U.S.S. Chub, ex-Bonad, SS 329)
HIZIR REİS (ex-U.S.S. Mero, SS 378)
İKİNCİ INÖNÜ (ex-U.S.S. Blueback, SS 326)
PIRİ REİS (ex-U.S.S. Mapiro, SS 376)
PREVEZE (ex-U.S.S. Guitarro, SS 363)
SAKARYA (ex-U.S.S. Boarfish, SS 327)
TURGUT REİS (ex-U.S.S. Bergall, SS 320)

Displacement: 1,526 tons standard, 1,829 tons surface, (2,424 tons submerged)
Dimensions: 311½×27½×13½ feet
Guns: 1—5 inch, 25 cal. (removed from some)
Tubes: 10—21 inch (6 bow, 4 stern), 24 torpedoes carried
Machinery: G.M. 2-stroke diesels. B.H.P.: 6,500=19.5 kts. (surface)
Electric motors. S.H.P.: 2,750=9 kts. (submerged)
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 78 to 85

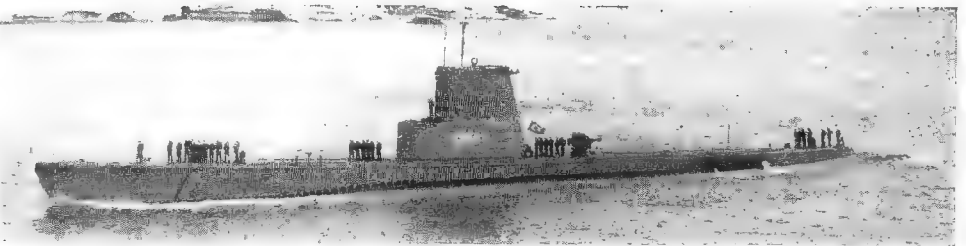
Nato Pen. No.	Turk Pen. No.	Name	Launched	Completed
S 330		Birinci İnönü	25 June 44	26 Oct. 44
S 333	21	Canakkale	6 Aug. 44	9 Dec. 44
S 341	03	Cerbe	27 Oct. 43	1 Mar. 44
S 334	20	Gür	7 May 44	28 Aug. 44
S 344		Hızır Reis	17 Jan. 45	17 Aug. 45
S 331	17	İkinci İnönü	21 May 44	23 Sep. 44
S 343		Piri Reis	9 Nov. 44	30 Apr. 45
S 340	22	Preveze	26 Sep. 43	16 Jan. 44
S 332		Sakarya	18 June 44	21 Oct. 44
S 342		Turgut Reis	16 Feb. 44	12 June 44

General
Former U.S. submarines of the "Balaq" type acquired by Turkey in 1948-60. All built by Electric Boat Company, Groton, Connecticut, except *Cerbe*, *Hızırreis*, *Pirireis* and *Preveze*, by Manitowoc Shipbuilding Co. Of all-welded construction. High standard of accommodation including separate messing and sleeping compartments. *Canakkale*, officially transferred in 1950, was semi-streamlined before delivery. *Dumlupınar* (ex-Blower) was lost in the Dardanelles on 4 Apr. 1953. *Preveze* semi-streamlined and *Cerbe*, fully streamlined,



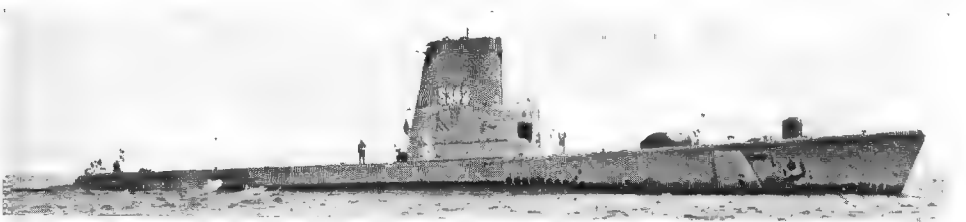
HIZIR REİS

1964, Turkish Navy, Official



PIRİ REİS

1962, A. & J. Pavla



TURGUT REİS

1959, Turkish Navy, Official

were transferred on 7 Aug. 1954 and Oct. 1954 respectively. *Cerbe* and *Preveze* are "guppy snorkel" conversions. Their loan was extended for five years in 1959. *Sakarya* was overhauled by the Electric Boat Division of the General Dynamics Corporation (formerly known as the Electric Boat Company), Groton, in 1957. *Turgut Reis* was transferred in Oct. 1958 and *Hızır Reis* and *Piri Reis* on 20 Apr. 1960 and 18 Mar. 1960 at San Francisco Naval Shipyard.

Photographs

Photographs of *Preveze* in the 1959-60 to 1961-62 editions, *Gür* in the 1958-59 to 1961-62 editions, *Birinci İnönü* in the 1953-54 to 1961-62 editions, and *Canakkale* in the 1962-63 and 1963-64 editions.

Disposals of older Submarines

Burak Reis, *Murat Reis* and *Oruc Reis*, and *Saldıray* and *Yıldırım*, were discarded in 1957.

ESCORT MINESWEEPERS

Ex-U.S. "Auk" Type 6 "Candarji" Class

CANDARLI (ex-Frollic, 22 July 1943)	AGS 2
CARDAC (ex-Tourmaline, ex-Usage, 4 Oct. 1942)	A 596
CARSAMBA (ex-Tattoo, 27 Jan. 1943)	AGS 1
CESME (ex-Elfreda, 25 Jan. 1943)	A 595
EDINCİK (ex-Grecian, 1943)	A 598
EREGLI (ex-Pique, ex-Celerity, 26 Oct. 1942)	A 592

Displacement: 1,010 tons standard (1,250 tons full load)
Dimensions: 215 (w.l.), 221 (o.a.)×32×10½ feet
Guns: 1—3 inch, 6—40 mm.
A/S weapons: 4 D.C.T.
Machinery: Diesel, electric drive, 2 shafts.
B.H.P.: 3,500=18 kts.
Complement: 105

General

Former U.S. steel hulled fleet minesweepers of the "Auk" type. Transferred to Great Britain while under construction. Served in the Royal Navy. Retr transferred to Turkey in Apr. 1947. Built by Associated Shipbuilders, Cleveland (*Garsamba*, *Cesme* and *Edinick*); General Engineering & D.D. Co., Alameda (*Candarli*) and Gulf Shipbuilding Corporation, Houston (*Cardak*).



EREGLI

1964, Turkish Navy, Official

and Eregli). Launch dates above. Named after Turkish ports. Erdemli (ex-Catherine) was withdrawn from active service in 1963, and Edremit (ex-Chance) in 1965.

Cesme and Cardak are Headquarter Ships. Eregli is Logistic Support Ship, Edincik and Erdemli are Training Ships. Carsamba and Candarli are Survey Ships.

Ex-British "Bathurst" Type
3 "Alanya" Class

ALANYA (ex-Broome) **AYVALIK** (ex-Antalya, ex-
AMASRA (ex-Pirle) Geraldton)

Displacement: 790 tons standard (1,025 tons full load)
Dimensions: 162 (pp.), 186 (o.a.) \times 31 \times 8 $\frac{1}{2}$ feet
Guns: 1—4 inch, 1—40 mm., 4—20 mm.
A/S weapons: 2 D.C.T.
Machinery: Triple expansion, 2 shafts. I.H.P.: 1,800=15.5 kts.
Oil fuel: 170 tons
Radius: 4,500 miles at 10 kts.
Complement: 85

Name	No.	Builders	Launched
------	-----	----------	----------

<i>Alanya</i>	M	501	Evans Deakin, Brisbane	6 Oct.	1941
<i>Amasra</i>	M	502	Broken Hill, Whyalla	Dec.	1941
<i>Avvalik</i>	M	500	Poole & Steele, Sydney	16 Aug.	1941

General

All Australian built, 1940-42. Served in the Royal Navy. Acquired from Great Britain in Aug 1946.



AMASRA

1964. Turkish Navy. Official

Named after Turkish ports.

All are now Logistic Support Ships. *Hamit Naci* (ex-*Avancik*, ex-*Launceston*) was withdrawn from service

in 1965, and Ayvalik (ex-Gawler) in 1963. A photograph of *Alanya* appears in the 1951-52 to 1963-64 editions.

**Ex-Canadian "Bangor" Type
9 "Bafra" Class**

BAFRA (ex-H.M.C.S. *Nipigon*, FSE 188)
BANDIRMA (ex-H.M.C.S. *Kenora*, FSE 191)
BARTIN (ex-H.M.C.S. *Kentville*, FSE 182)
BEYKOZ (ex-H.M.C.S. *Blairmore*, FSE 193)
BEYLERBEYI (ex-H.M.C.S. *Mahone*, FSE 192)
BODRUM (ex-H.M.C.S. *Fort William*, FSE 195)
BORNOVA (ex-H.M.C.S. *Westmount*, FSE 187)
BOZCAADA (ex-H.M.C.S. *Swift Current*, FSE 185)
BUYUKDERE (ex-H.M.C.S. *Sarnia*, FSE 190)

Displacement: 672 tons standard (900 tons full)
Dimensions: 171½ (pp.), 180 (o.a.) × 28½ ×
12½ (max.) feet
Guns: 1—40 mm., 2—20 mm.
A/S weapons: 1 Hedgehog, 4 D.C.T.
Machinery: Triple expansion, 2 shafts, 1 I.H.P.:
2,400=16.5 kts.
Boilers: 2 Admiralty 3-drum type
Complement: 70

General

Former Canadian fleet minesweepers, rerated coastal escorts in 1953. Transferred to Turkey in 1957. *Bafra*, *Bandirma*, *Bartin* and *Bodrum* were turned over 25 Nov. 1957 at Point Edward Naval Base, Sydney, N.S., and *Beykoz*, *Beylerbeyi*, *Barnova*, *Bozcaada* and *Buyukdere* early 1958. All sailed from Canada to Turkey on 19 May 1958. *Biga* (ex-H.M.C.S. *Medicine Hat*, FSE, 197) was withdrawn from service in 1963.



BEYKOZ (no mainmast)

1963, A. & J. Pavlov

No.	Name	Launched	No.	Name	Launched	No.	Name	Launched
P 121	Bafra	30 Sep. 1940	P 122	Beykoz	14 May 1942	P 126	Bornova	14 Mar. 1942
P 129	Bandırma	20 Dec. 1941	P 123	Geyirkezi	15 Nov. 1940	P 127	Buzaada	29 May 1941
P 130	Bartın	18 Apr. 1942	P 125	Bodrum	30 Dec. 1941	P 128	Buvukdere	21 Jan. 1942

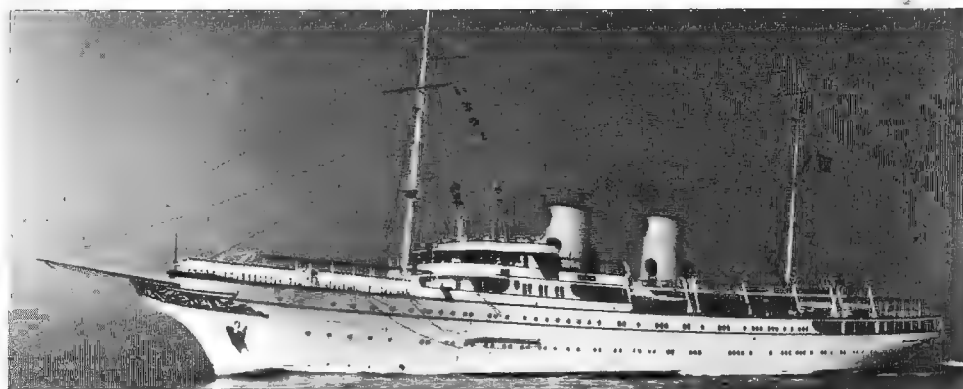
TRAINING SHIP

SAYARONA

Displacement:	5,710 tons
Dimensions:	349½ (w.l.), 408½ (o.a.)×53× 20½ (mean) feet
Guns:	4—3 inch, 2—40 mm. AA., 2—20 mm. AA.
Machinery:	6 geared turbines, 2 shafts. S.H.P.: 10,750=21 kts. (about 18 kts. now)
Boilers:	4 watertube, 400 lb. working pressure
Oil fuel:	2,100 tons
Radius:	9,000 miles at 15 kts.
Complement:	132+81 midshipmen

General

Built by Blohm & Voss, Hamburg. Launched on 28 Feb. 1931. Formerly probably the most sumptuously fitted yacht afloat. Equipment includes Sperry gyro-stabilisers. Reconstructed and converted into a training ship in 1952, the saloons and dining rooms being adapted as classrooms, workshops and libraries for 120 midshipmen.



SAYARONA

1965. *Turkish Navy. Official*

COASTAL MINESWEEPERS

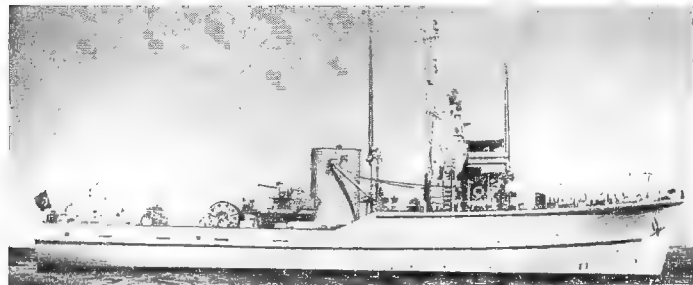


SINOP 1961, A. & J. Pavia

SAMSUN M 257 (ex-U.S.S. MSC 268) **SIGACIK M 265** (ex-U.S.S. MSC 311)
SAPANCA M 266 (ex-U.S.S. MSC 312) **SILIFKE M 263** (ex-U.S.S. MSC 304)
SAROS M 264 (ex-U.S.S. MSC 305) **SINOP M 258** (ex-U.S.S. MSC 270)
SEDDULBAHIR M 260 (ex-MSC 272) **SURMENE M 259** (ex-U.S.S. MSC 271)

Displacement: 320 tons standard (370 tons full load)
Dimensions: 138 (pp.), 144 (o.a.)×28×9 feet
Guns: 2—20 mm. AA.
Machinery: 2 diesels 2 shafts. B.H.P.: 1,200=14 kts.
Oil fuel: 25 tons
Radius: 2,500 miles at 10 kts.
Complement: 38 (4 officers, 34 men)

General
Constructed of wood and non-magnetic materials. Transferred on 30 Sep. 1958, 26 July 1965, 8 Nov. 1965, 9 July 1959, 29 May 1965, 25 Oct. 1965, 30 Jan. 1959 and 27 Mar. 1959 respectively, under MAP.



TERME 1959, Turkish Navy Official

TIREBOLU M 524 (ex-H.M.C.S. Comax) **TERME M 523** (ex-H.M.C.S. Trinity)
TEKIRDAG M 525 (ex-H.M.C.S. Ungava) **TRABZON M 522** (ex-H.M.C.S. Gaspe)

Displacement: 390 tons standard (412 tons full load)
Dimensions: 140 (pp.), 152 (o.a.)×28×7 feet
Guns: 1—40 mm.
Machinery: Diesels. 2 shafts. B.H.P.: 2,400=16 kts.
Oil fuel: 52 tons
Radius: 4,500 miles at 11 kts.
Complement: 40

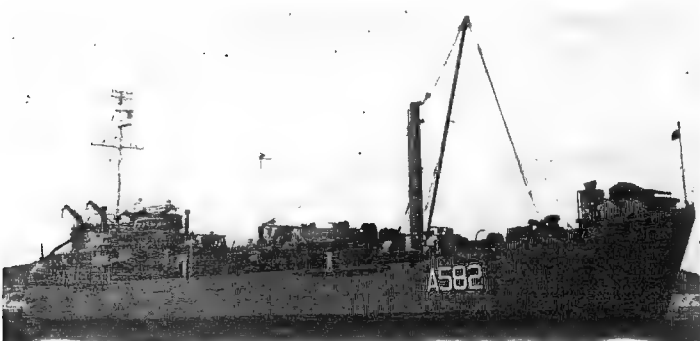
General
Ex-Canadian MCB. Sailed from Sydney, N.S., to Turkey on 19 May 1958.

KARAMURSEL (ex-Kulluck, ex-YMS 348) **KEREMPE** (ex-YMS 239) 27 Oct. 1942
KEMER (ex-YMS 228) 2 Oct. 1942 **KIRTE** (ex-YMS 307) 31 Dec. 1943

Displacement: 270 tons standard (350 tons full load)
Dimensions: 136×24×6 feet
Guns: 1—3 inch, 2—20 mm. AA.
Machinery: 2 G.M. diesels. B.H.P.: 1,000=12 kts.
Oil fuel: 16 tons
Radius: 1,500 miles at 9 kts.
Complement: 20

General
Acquired from U.S. in 1947. Nos. M 516, 520, 519, 521. Kas (ex-YMS 79) and Killimli (ex-YMS 289) were withdrawn from service in 1963, and Kozlu (ex-YMS 375) and Kusadasi (ex-YMS 468) in 1965.

REPAIR SHIPS



BASARAN 1965, Turkish Navy, Official

BASARAN (ex-Patroclus, ARL 19, ex-LST 955) **ONARAN** (ex-Alecto, AGP 14, ex-LST 558)

Displacement: 1,625 tons standard (3,960 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×11 feet
Guns: 2—40 mm. AA.; 8—20 mm. AA.
Machinery: Diesel. 2 shafts. B.H.P.: 1,700=11 kts.
Oil fuel: 1,000 tons
Radius: 6,000 miles at 9 kts.

General
Former U.S. repair ship and MTB tender, respectively, of the LST type. Basaran was launched on 22 Oct. 1944 by Bethlehem Hingham Shipyard, Onaran on 14 Apr. 1944 by Missouri Valley Bridge & Iron Co. Acquired from the U.S.A. in 1952 and 1947, respectively. Photograph of Onaran in the 1953-54 to 1960-61 editions.

PATROL VESSELS

6 New Construction

AKHISAR P 114 (ex-PC 1641) **SIVRIHISAR P 115** (ex-PC 1643)
DEMIRHISAR P 112 (ex-PC 1639) **SULTANHISAR P 111** (ex-PC 1638)
KOCHISAR P 116 (ex-PC 1642) **YARHISAR P 113** (ex-PC 1640)

Displacement: 280 tons standard (official figures)
Dimensions: 170 (w.l.), 173½ (o.a.)×23×10½ feet
Guns: 1—3 inch d.p.; 1—40 mm. AA.
A/S weapons: 4 D.C.T.
Machinery: 2 F.M. diesels. 2 shafts. B.H.P.: 2,880=20 kts.

General
All are similar to U.S. 173 ft. class submarine chasers. Built by Gunderson Bros. Engineering Co., Portland, Oregon, except Kochisar built in Gölçük Dockyard, Turkey. Complement 65. Transferred on 3 Dec. 1964, 22 Apr. 1965, 22 Apr. 1965, 2 May 1964, 24 Sep. 1964 and 22 Apr. 1965, respectively.

Fast Patrol Boats
The motor torpedo boats Hugin and Munin are on loan from West Germany (see page 105), and temporarily renamed DOGAN and MARTI.

MOTOR LAUNCHES



No 12 1962, courtesy Mr. W. H. Davis

J 12	J 13	J 14	J 15	J 16	J 17	J 18	J 19	J 20
Displacement:	70 tons							
Dimensions:	95×15½×4½ feet							
Machinery:	4 M.-B. diesels. 2 shafts. B.H.P.: 2,700=29 kts.							

General
Cutters of U.S.C.G. type built in 1960-61 by Schueers, Bardenfleth.



AB 7 Added 1961, Captain Aldo Fraccaroli

AB 1	AB 2	AB 3	AB 4	AB 5	AB 6	AB 7	AB 8
(ex-ML 386) P 321	(ex-ML 584) P 322	(ex-ML 836) P 323	(ex-ML 837) P 324	(ex-ML 838) P 325	(ex-ML 842) P 326	(ex-ML 862) P 327	(ex-ML 863) P 328
Displacement:	85 tons standard (115 tons full load)						
Dimensions:	112×17½×4 feet						
Guns:	1—3 pdr., 2—20 mm. AA., 4 M.G.						
Machinery:	2 Hall-Scott engines. B.H.P.: 1,120=21 kts.						
Oil fuel:	12 tons						
Complement:	18						

General
Fairmile B type. Launched in 1940-42. Transferred in 1947. Pennant numbers (NATO) above. A photograph of AB 2 appears in the 1947-48 to 1960-61 editions.



LS 12 1961, Giorgio Arra

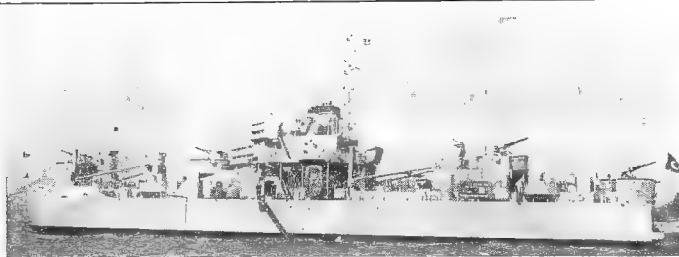
LS 9 P 339	LS 10 P 308	LS 11 P 309	LS 12 P 310
Displacement:	63 tons		
Dimensions:	83×14×5 feet		
Guns:	1—20 mm. AA.		
Machinery:	2 Cummins. B.H.P.: 1,100		

General
Ex-U.S. type, transferred on 25 June 1953. P pennant numbers (NATO) above.

MTB 1 P 311	MTB 3 P 313	MTB 6 P 316	MTB 8 P 318
MTB 2 P 312	MTB 4 P 314	MTB 7 P 317	MTB 9 P 319
			MTB 10 P 320
Displacement:	70 tons		
Dimensions:	71½×13½×8½ (max.) feet		
Machinery:	Diesel. B.H.P.: 2,000=10 kts.		

General
All launched in 1942. General purpose craft. P pennant numbers (NATO) above. Photograph of MTB 9 in the 1957-58 edition. MTB 5 (P 315) was scrapped.

COASTAL MINELAYERS



MARMARIS

1955, Turkish Navy, Official

MARMARIS (ex-LSM 481) **MERIC** (ex-LSM 490) **MORDOGAN** (ex-LSM 494)
MERSIN (ex-LSM 492) **MUREFTE** (ex-LSM 493)
 Displacement: 743 tons standard (1,100 tons full load)
 Dimensions: 196½ (w.l.), 203½ (o.a.)×34½×8½ feet
 Guns: 2—40 mm. AA., 2—20 mm. AA.
 Machinery: Diesels. 2 shafts. B.H.P.: 2,880—12 kts.
 Oil fuel: 60 tons
 Radius: 2,500 miles at 10 kts.
 Complement: 70

General

Ex-U.S. Landing Ships Medium. All launched in 1945, converted into coastal minelayers by the U.S. Navy in 1952 and taken over by the Turkish Navy (LSM 481, 484 and 490) and the Norwegian Navy (LSM 492 and 493) in Oct. 1952 under MAP. LSM 492 (*Vale*) and LSM 493 (*Vidar*) were retransferred to the Turkish Navy on 1 Nov. 1960 at Bergen, Norway. Nato Pennant Nos. N 100 (*Marmaris*), N 101 (*Mardogan*), N 102 (*Meric*), N 103 (*Mersin*), N 104 (*Murefte*).



MEHMEDCIK

1965, Turkish Navy, Official

MEHMEDCIK (ex-U.S.S. YMP 3) N 105
 Displacement: 540 tons full load
 Dimensions: 130×35×6 feet
 Machinery: Diesels. 2 shafts. B.H.P.: 600—10 kts.
 Complement: 22

General

Former U.S. motor mine planter. Built by Higgins Inc., New Orleans, Completed in 1958. Steel hulled. Transferred under MAP in 1958. For harbour defence.

BOOM DEFENCE VESSELS



HALDIRAY

1964, Turkish Navy, Official

HALDIRAY AG 5
 Displacement: 680 tons standard (960 tons full load)
 Dimensions: 148½ (pp.), 173½ (o.a.)×35×13½ feet
 Guns: 1—40 mm. AA., 3—20 mm. AA.
 Machinery: 4 MAN diesels, 2 shafts. B.H.P.: 1,450—12 kts.
 Complement: 48

General

Net tender built under the U.S. off-shore procurement programme by Kröger, Rendsburg for transfer to Turkey under MAP in Apr. 1959. U.S. No. AN 104. Launched on 20 Oct. 1960. Delivered on 25 Feb. 1961.

AG 4 (ex-Larch, ex-AN 21)
 Displacement: 560 tons standard (805 tons full load)
 Dimensions: 146 (w.l.), 163 (o.a.)×30½×10½ feet
 Guns: 1—3 inch AA.
 Machinery: Diesel-electric. B.H.P.: 800—12 kts.
 Complement: 48

General

Former U.S. netlayer of the "Aloe" class. Built by American S.B. Co., Cleveland. Laid down in 1940. Launched on 2 July 1941. Completed in 1941. Acquired in 1947. Pennant No. A 45. Photograph in the 1955-56 to 1963-64 editions.

AG 1 (ex-Barbarian, 21 Oct. 1937) **AG 2** (ex-Barbette, 15 Dec. 1937)
AG 3 (ex-Barfair, 21 May 1938)

Displacement: 750 tons standard (1,000 tons full load)
 Dimensions: 150 (pp.), 173½ (o.a.)×32½×9½ feet
 Guns: 1—3 inch AA.
 Machinery: Triple expansion. I.H.P.: 850—11½ kts.
 Boilers: 2 S.E.
 Complement: 32

General

Former British boom defence vessels. First two built by Blyth S.B. Co., third by J. Lewis & Sons. Launch dates above. Photograph in the 1957-58 edition.

SUBMARINE RESCUE SHIP



KURTARAN

1961, A. & J. Pavla

KURTARAN (ex-Bluebird, ASR 19, ex-Yurak)
 Displacement: 1,294 tons standard (1,675 tons full load)
 Dimensions: 205 (o.a.)×38½×12 feet
 Guns: 1—3 inch, 2—40 mm. AA.
 Machinery: Diesel-electric. B.H.P.: 3,000—16 kts.
 Complement: 85

General

Built by Charleston S.B. & D.D. Co. Launched in 1946. Former salvage tug, adapted as a submarine rescue vessel in 1947. Transferred from the United States Navy on 15 Aug. 1950, under MAP. Pennant No. A 67. NATO Pennant No. A 584.

TENDERS

ISIN (ex-Imia Layteri)

Displacement: 390 tons full load
 Dimensions: 110×24×7 feet
 Guns: 1 M.G.
 Machinery: Crossley diesel. B.H.P.: 330
 Oil fuel: 32 tons

General

Built by James Pollock, Sons & Co., Faversham. Launched in 1941. Coaster type. Formerly employed in charging the batteries of submarines. Is now a main diving ship. Photograph in the 1957-58 and earlier editions. Pennant No. A 570.

Gate Vessels

The gate vessels ex-YNG 45, 46 and 47 were built by U.S. for transfer to Turkey under MAP.

Disposals

The tenders *Akin* and *Dalgic* have been discarded, it is officially stated.

PRESIDENTIAL YACHT

HALAS (ex-Umur)

Completed and commissioned for service in 1956. Renamed *Halas* in 1961.

OILERS

2 New Construction

ALBAY BURAK

Displacement: 3,800 tons full load (officially revised figure)
 Dimensions: 251½ (pp.), 274½ (o.a.)×40½×18 feet
 Machinery: 2 G.M. diesels, electric drive. B.H.P.: 4,400—16 kts.
 Complement: 88

General

Two new tankers for the Turkish Navy were ordered from Gölcük Dockyard, İzmit. *Alban Burak* was built in 1964.

YUZBASİ TOLUNAY

Displacement: 2,500 tons standard (3,500 tons full load)
 Dimensions: 260×41×19½ feet
 Machinery: Atlas Polar-diesels. 2 shafts. B.H.P.: 1,920—14 kts.

General

Built at Taskizak by Haskoy Naval D.Y., Istanbul. Launched on 22 Aug. 1950. Pennant No. A 586. A photograph appears in the 1959-60 to 1962-63 editions.



AKAR

1959, A. & J. Pavla

AKAR (ex-Istanvul, ex-Adaur)

Displacement: 4,289 tons light (13,200 tons full load)
 Dimensions: 433×52½×27 feet
 Machinery: Parsons geared turbines. S.H.P.: 5,200—15 kts

General

Pennant No. A 48. NATO Pennant No. A 580.

AKPINAR (ex-Chiwaukum)

Displacement: 700 tons light (2,700 tons full load)
 Measurement: 1,453 tons deadweight
 Dimensions: 212½ (w.l.), 220½ (o.a.)×37×12½ feet
 Machinery: Diesel. B.H.P.: 800—10 kts.

General

Formerly the United States oiler AOG 26. Built by East Coast S.Y. Inc., Bayonne. Laid down on 2 Apr. 1944. Launched on 5 May 1944. Completed on 22 July 1944. Transferred to Turkey in 1949. A photograph appears in the 1957-58 edition.

GÖLCÜK

Displacement: 1,255 tons
 Measurement: 750 tons deadweight
 Dimensions: 185×31½×10 feet
 Machinery: B. & W. diesel. B.H.P.: 700—12½ kts.

General

Built by Gölcük Dockyard, İzmit. Launched on 4 Nov. 1935. A photograph appears in the 1957-58 and earlier editions. Pennant No. A 573.

The U.S. harbour tugs ex-YTL 155, 751 were transferred under MAP.

THE ROYAL NAVY

Admiralty Board

Secretary of State for Defence (Chairman):
The Right Honourable Denis W. Healey, M.B.E., M.P.

Minister of Defence for the Royal Navy (Vice-Chairman):
Mr. Christopher Paget Mayhew, M.P.

Parliamentary Under-Secretary of State for Defence for the Royal Navy:
Mr. Joseph Percival William Mallalieu, M.P.

Chief of the Naval Staff and First Sea Lord:
Admiral Sir (John) David Luce, G.C.B., D.S.O. and Bar, O.B.E.

Chief of Naval Personnel and Second Sea Lord:
Admiral Sir Desmond Parry Dreyer, K.C.B., C.B.E., D.S.C.

Controller of the Navy:
Vice-Admiral Horace Rochfort Law, C.B., O.B.E., D.S.C.

Chief of Naval Supplies and Transport and Vice-Controller:
Vice-Admiral Sir Raymond Shayle Hawkins, K.C.B.

Vice-Chief of the Naval Staff:
Vice-Admiral Sir John Fitzroy Duyland Bush, K.C.B., D.S.C. and 2 Bars.

Deputy Chief of the Naval Staff:
Vice-Admiral Sir Frank Henry Edward Hopkins, K.C.B., D.S.O., D.S.C.

Chief Scientist (Royal Navy):
Mr. Basil Wilfrid Lythall, M.A.

Second Permanent Under-Secretary of State (Royal Navy):
Sir (Arthur Lucius) Michael Cary, K.C.B.

Principal Technical Officers not on the Admiralty Board

Director-General, Ships:
Sir Alfred J. Sims, K.C.B., O.B.E., M.R.I.N.A., R.C.N.C.

Director-General of Aircraft (Naval):
Rear-Admiral Arthur Francis Turner, D.S.C.

Director-General of Weapons (Naval):
Rear-Admiral Andrew Mackenzie Lewis.

Chief Polaris Executive:
Vice-Admiral Hugh Stirling Mackenzie, C.B., D.S.O. and Bar, D.S.C.

Polaris Project Officer:
Rear-Admiral Frederick Dossor, C.B., C.B.E., B.Sc., M.I.E.E., M.Amer.I.E.E.

British Naval Attaché in Washington:
Rear-Admiral Peter M. Compston.

American Naval Attaché in London:
Rear-Admiral James W. O'Grady, U.S.N.

Personnel

1957-58: 121,500	1960-61: 102,000	1963-64: 100,000
1958-59: 112,000	1961-62: 100,000	1964-65: 103,000
1959-60: 106,000	1962-63: 100,000	1965-66: 104,000

Navy Estimates

1957-58: £316,000,000	1960-61: £397,500,010	1963-64: £439,951,600
1958-59: £339,400,000	1961-62: £406,073,400	1964-65: £487,690,000
1959-60: £370,700,000	1962-63: £422,273,000	1965-66: £544,188,000

Mercantile Marine

Lloyd's Register of Shipping: 4,538 vessels of 21,489,948 tons gross

British Carrier Borne Aircraft

Name	Maker	Type	Dimensions	Power Plant	Armament	Performance
SEA VIXEN FAW. Mk. 1 and 2	Hawker Siddeley	Two-Seat Day and Night All-Weather Fighter	Wing Span 50 ft. Folded 22 ft. 3 in. Length 53 ft. 7 in.	Two Rolls - Royce Avon 208 Turbojets	Firestreak (FAW. Mk. 1) or Red Top (FAW. Mk. 2), bombs, rock- ets, Bullpup mis- siles	Maximum Speed, approx. 700 m.p.h.
SCIMITAR F Mk. 1	Supermarine	Single-Seat Fighter and Strike Aircraft	Wing Span 37 ft. 2 in. Folded 20 ft. 6 in. Length 55 ft. 4 in.	Two Rolls - Royce Avon 202 Turbojets	Sidewinder Guided Missiles, Bombs, rockets, Bullpup missiles, or Nuclear Wea- pons	Maximum Speed, 710 m.p.h.
BUCCANEER S. Mk. 1 and 2	Hawker Siddeley	Two-Seat All- Weather Strike Aircraft	Wing Span 42 ft. 4 in. Folded 19 ft. 11 in. Length 63 ft. 5 in.	2 Bristol Siddeley Gyron Junior 101 (S. Mk. 1) or Rolls- Royce Spey (S. Mk. 2) Turbojets	Nuclear Weapons in large bomb bay with rotating door Bombs, rockets, Bullpup missiles.	Speed in tran- sonic range at low altitudes
GANNET AEW. Mk. 3	Westland	Three-Seat Early Warning Aircraft	Wing Span 54 ft. 4 in. Folded 19 ft. 11 in. Length 44 ft.	One Bristol Sid- deley Double Mamba 102 Turboprop	None	Maximum Speed, approx. 250 m.p.h.
WASP HAS. Mk. 1	Westland	Five-Seat Anti-Submarine Helicopter	Rotor dia.: 32 ft. 3 in. Overall length (blades folded) 30 ft. 5 in.	One Bristol Sid- deley Nimbus Shaft - turbine En- gine	Anti-Submarine homing torpedoes or missiles	Maximum Speed, 121 m.p.h. Range, 270 miles
WESSEX HAS. Mk. 1	Westland	Multi-Seat Anti-Sub- marine and Trans- port Helicopter	Rotor dia.: 56 ft. Fuselage Length: 48 ft 4½ in.	One Napier Gazelle 161 Shaft - Turbine Engine	Anti-Submarine Weapons SS. 11 missiles.	Maximum Speed, 127 m.p.h. Range, 340 miles
WESSEX HU. Mk. 5	Westland	Commando assault transport	Rotor dia. 56 ft. Fuselage Length: 48 ft. 4½ in.	Two coupled Bristol Siddeley Gnome Shaft-turbine engines	SS. 11 missiles, guns, rockets.	Maximum Speed, 132 m.p.h. Range, 478 miles

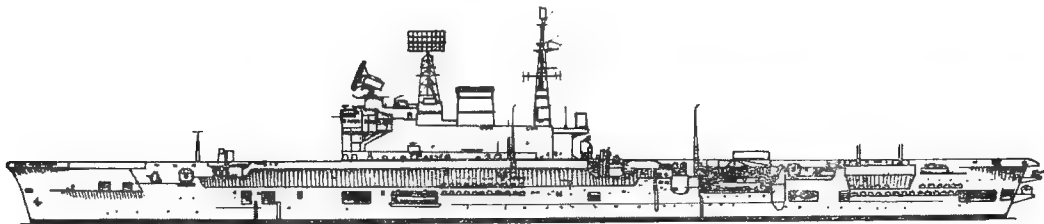
British Naval Guided Missiles

Type	Name	Maker	Length ft.	Propulsion	Speed Mach.	Range miles	Guidance System	Notes
SURFACE-TO-AIR	Seacat	Short Bros. & Harland	4.85	Solid propellant			Radio command	Close, range anti-aircraft missile
	Seaslug	Hawker Siddeley	19.65	I.C.I. Solid propellant and solid boosters			Beam- rider	Carried by County Class destroyers
AIR-TO-AIR	Firestreak	Hawker Siddeley	10.5	Solid propellant	2.0+	0.75-5	Infra-red	Carried by Sea Vixen Mk.1 fighters
	Red Top	Hawker Siddeley	11.5	Solid propellant	3.0	7	Infra-red	Carried by Sea Vixen Mk.2 fighters
	Sidewinder	N.O.T.S. (U.S.A.)	9.2	Solid propellant	2.5	2	Infra-red	Carried by Scimitar fighters
AIR-TO-SURFACE	Bullpup	Martin, Maxson (U.S.A.) and European consortium	10.5	Liquid propellant	1.8	7	Radio Command	Carried by Scimitar, Buccaneer, Sea Vixen
	S.S. 11	Nord- Aviation (France)	3.9	Solid propellant	335 m.p.h.	1.75	Wire guidance	Carried by Wessex helicopters

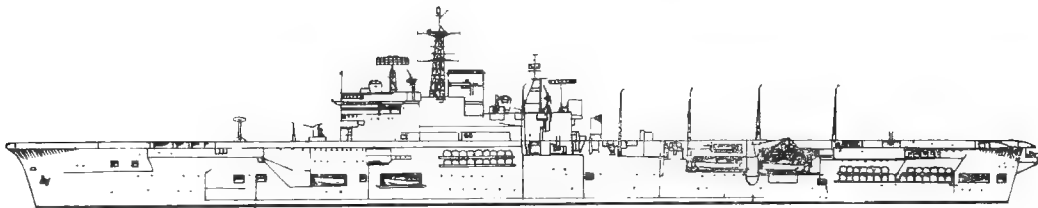
SILHOUETTES

Scale: 150ft. = 1 inch.

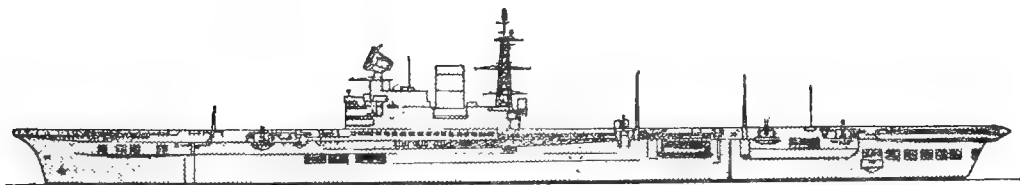
Aircraft Carriers



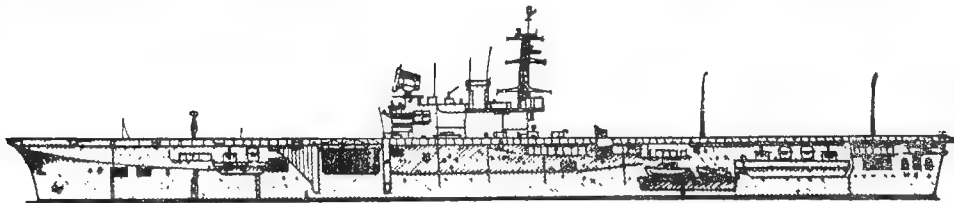
EAGLE



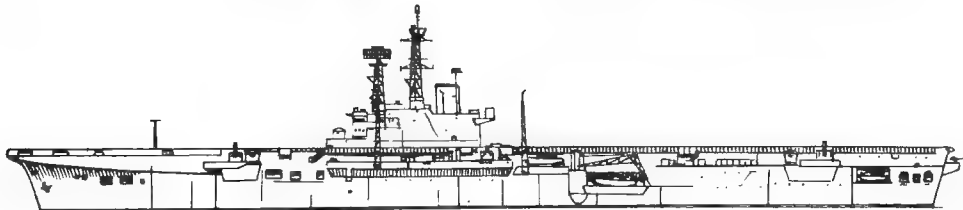
ARK ROYAL



VICTORIOUS

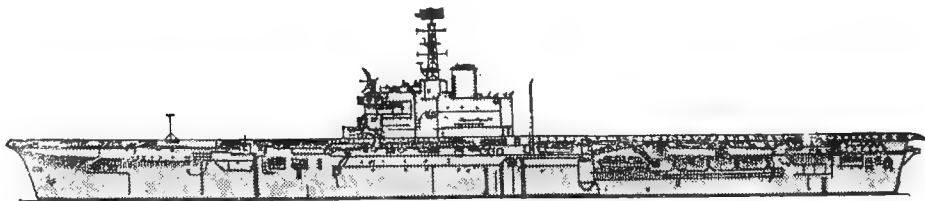


HERMES

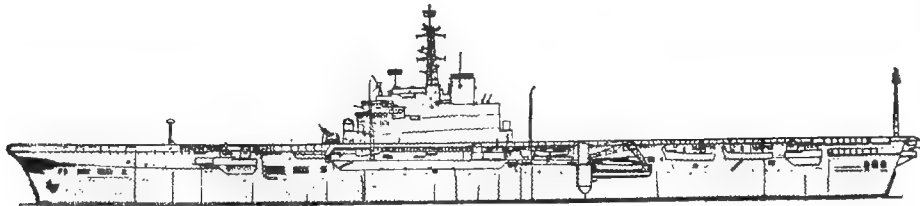


CENTAUR

Commando Carriers



ALBION

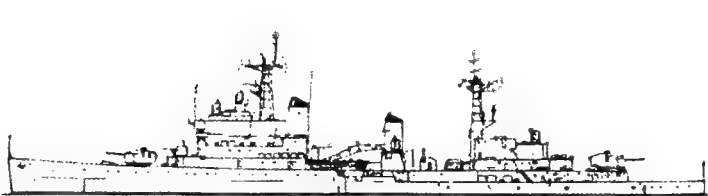


BULWARK

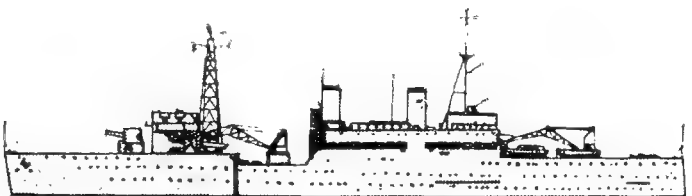
Silhouettes—continued

Scale: 150ft. = 1 inch.

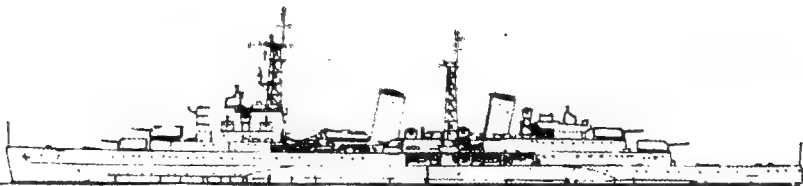
Cruisers, Guided Missile Armed Destroyers, Support Ships, Headquarters Ships, etc.



BLAKE, LION, TIGER



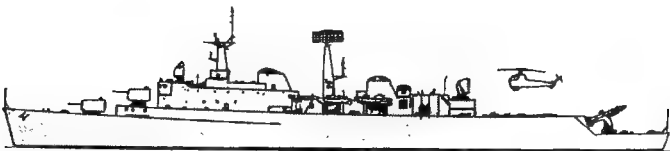
MAIDSTONE (Nuclear Submarine Support Ship)



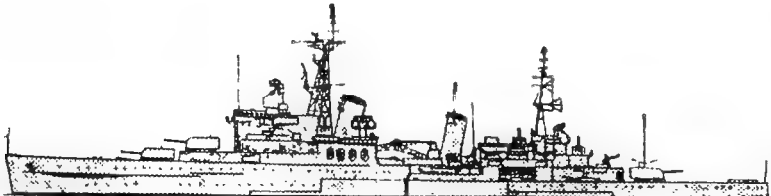
BELFAST



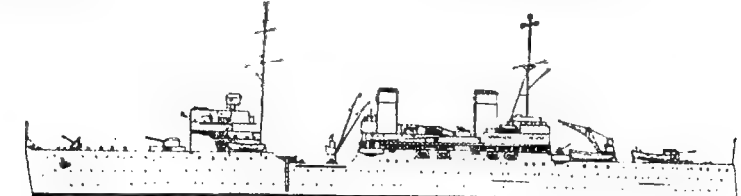
HARTLAND POINT (Escort Maintenance Ship)



DEVONSHIRE, HAMPSHIRE



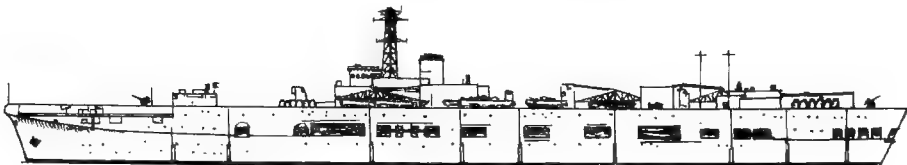
SHEFFIELD (Headquarters Ship)



FORTH (Submarine Depot Ship)



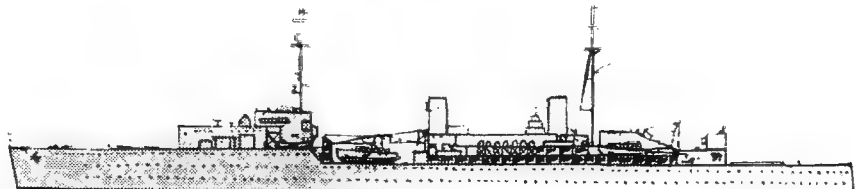
DECOY, DIAMOND, DIANA, DUCHESS



DAINTY, DARING, DEFENDER, DELIGHT



MANXMAN (Minesweeper Support Ship)



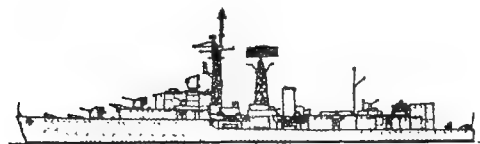
ADAMANT (Submarine Depot Ship)



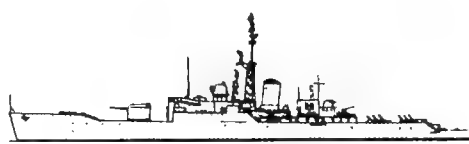
TYNE (Destroyer Depot Ship)

Scale: 150 feet=1 inch

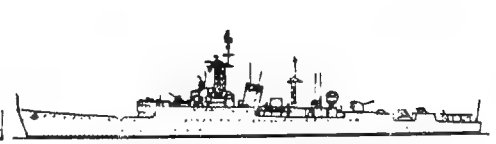
Radar Pickets, Destroyers, Frigates, Survey ships, etc.



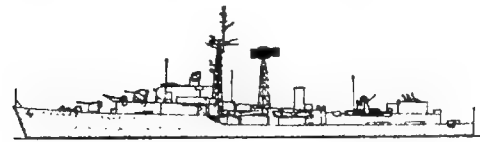
CROSSBOW
(Fleet Radar Picket, with Squid)



ROTHESAY Class



GRENVILLE, UNDAUNTED
with helicopter platform aft



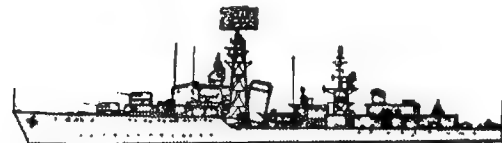
SCORPION
(Fleet Radar Picket, with Limbo)



LYNX, PUMA



WAKEFUL



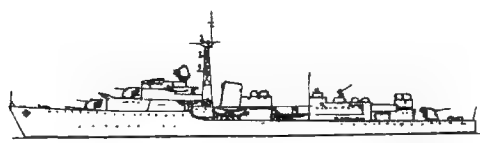
AGINCOURT, AISNE, BARROSA, CORUNNA
("BATTLE" Class Fleet Radar Pickets)



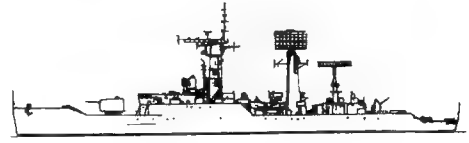
JAGUAR, LEOPARD



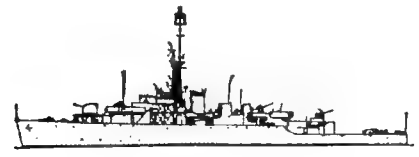
RELENTLESS
(Fast A/S Frigate, Full Conversion)



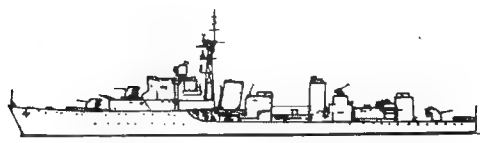
CAPRICE (Coesar, Casandra, similar bridge)



CHICHESTER



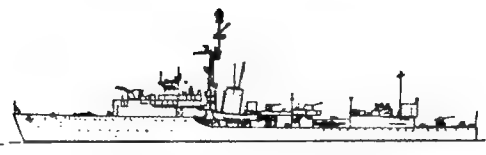
"LOCH" Class



CAMBRIAN, CAVENDISH



SALISBURY



TERPSICHORE (Fast Frigate)
(Limited Conversion from Destroyer)



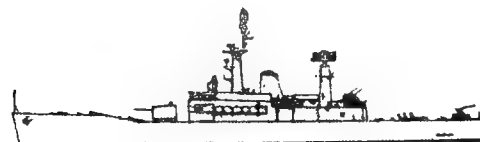
CARYSFORT, CAVALIER
Superstructure extended aft, modified bridge



LINCOLN



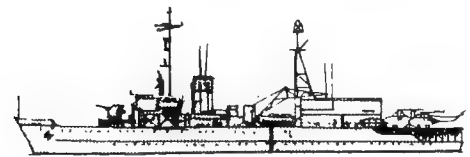
ALERT
(Despatch Vessel) Modified Frigate



LEANDER Class



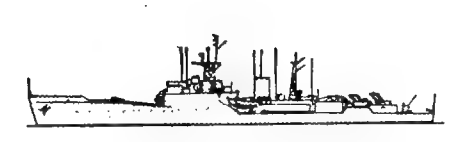
LLANDAFF



PROTECTOR
(Ice Patrol Ship, ex-Netlayer)



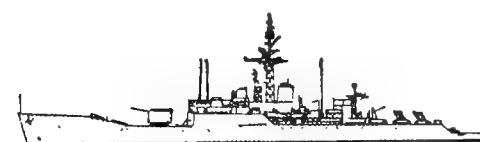
ASHANTI ("TRIBAL") Class



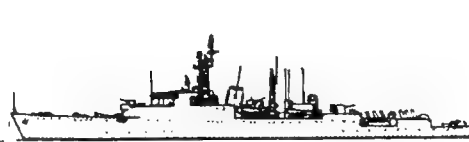
BLACKWOOD Class



VIDAL (Survey Ship) with helicopter



WHITBY Class

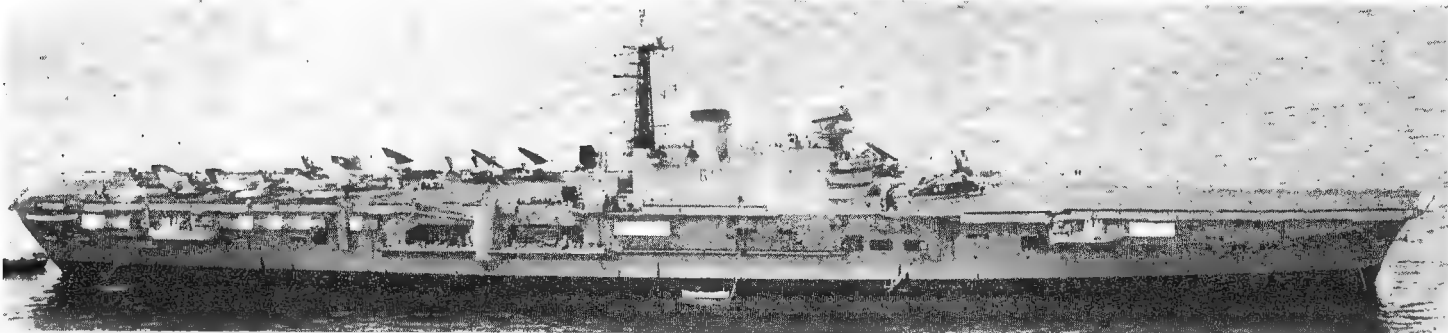


ULSTER, ZEST (Full Conversion)
Frigate bridge, gun on break



DALRYMPLE, DAMPIER, OWEN
(Survey Ships) Modified Frigates

AIRCRAFT CARRIERS



HERMES

1964, Official



HERMES

1964, Wright & Logan

Projected Construction

Approval to build a new aircraft carrier of about 50,000 tons displacement was officially announced on 30 July 1963.

HERMES (ex-Elephant)

Deck Letter:	H
Pennant No.:	R 12
Builders:	Vickers-Armstrongs, Barrow-in-Furness
Laid down:	21 June 1944
Launched:	16 Feb. 1953
Completed:	18 Nov. 1959
Displacement:	23,000 tons standard, 27,800 tons full load
Dimensions:	Length: 650 (pp.), 744½ (o.a.) feet. Beam (hull): 90 feet; beam (overall): 144½ feet. Draught: 28 feet
Guns:	10—40 mm. AA. (twin)
Aircraft:	20 plus 8 helicopters
Catapults:	2 steam
Machinery:	Parsons geared steam turbines. 2 shafts. S.H.P. 78,000=28 kts.
Boilers:	4 Admiralty 3-drum type
Complement:	1,834 (190 officers, 1,644 men) 2,100 with air squadrons

General

Originally a sister and name ship of a class including *Albion*, *Bulwark* and *Centaur*, see following pages, but her design was modified so much that she was virtually of a different type, being more advanced and incorporating new equipment and improved arrangements, including five post-war developments—angled deck, steam catapult, landing sight, 3-D radar, and deck-edge lift. Her improvements were of similar standard to those in the reconstructed *Victorious*. She is air-conditioned throughout. The ship was manned for trials on 23 Oct. 1959, accepted from her builders on 18 Nov. 1959, commissioned for service with the Royal Navy on 25 Nov. 1959, and embarked her air squadrons and joined the Fleet in the summer of 1960. Long refit 1964 to 1966.

Flight Deck

The flight deck is angled to 6½ degrees off the centre line of the ship, the biggest angle that can be practically contrived in an aircraft carrier of the size.

Engineering

The ship has the latest system of remote control for her engines, coupled with automatic feed for her boilers, whereby with the entire complement of officers and men under cover and protected in "the citadel," a self-contained section of the ship proof against radio-active fall-out, the ship can be safely steamed through an atomic cloud.

Electrical

The electrical plant is a 440 volt, 3 phase, 60 cycle A.C. installation, with a generating capacity of 5,440 kW.

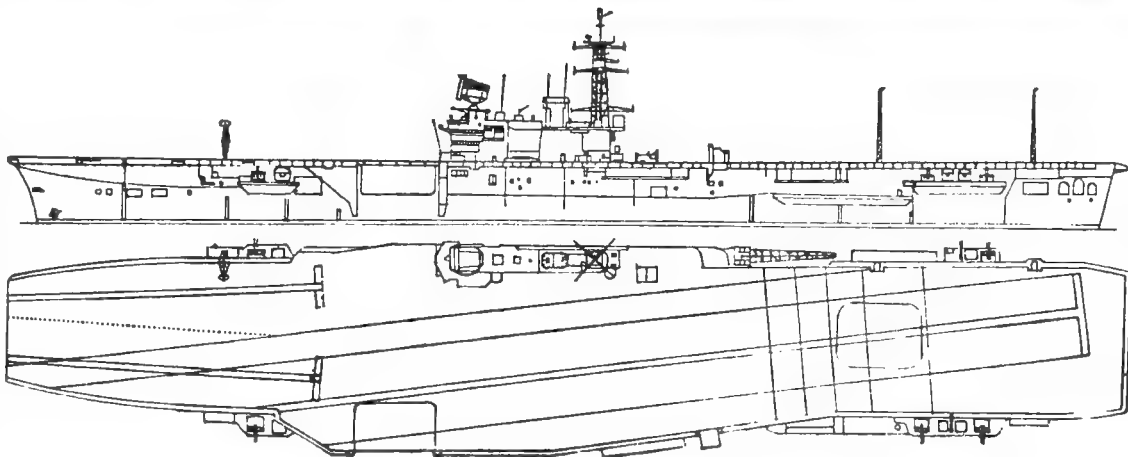
Drawing

Port elevation and plan. Drawn in 1960. Scale: 128 feet=1 inch.

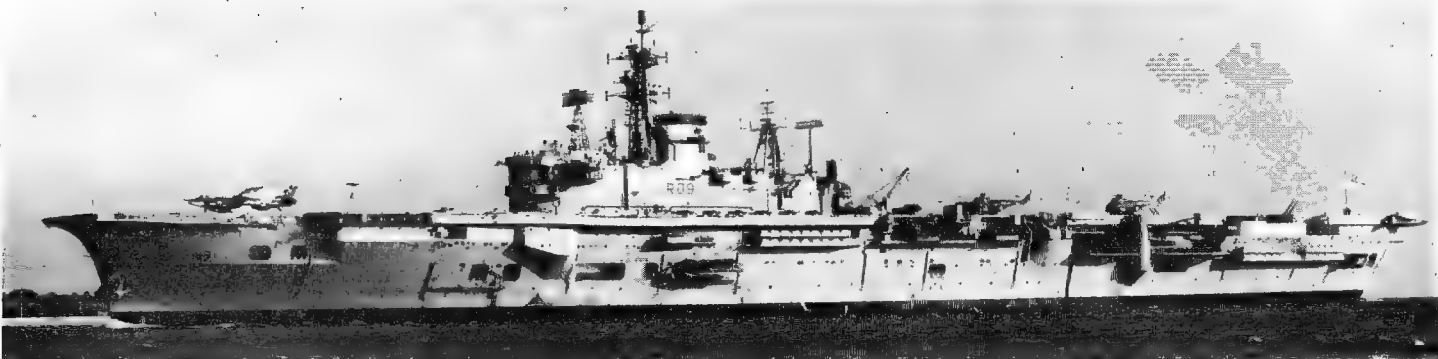


HERMES

1960, Official

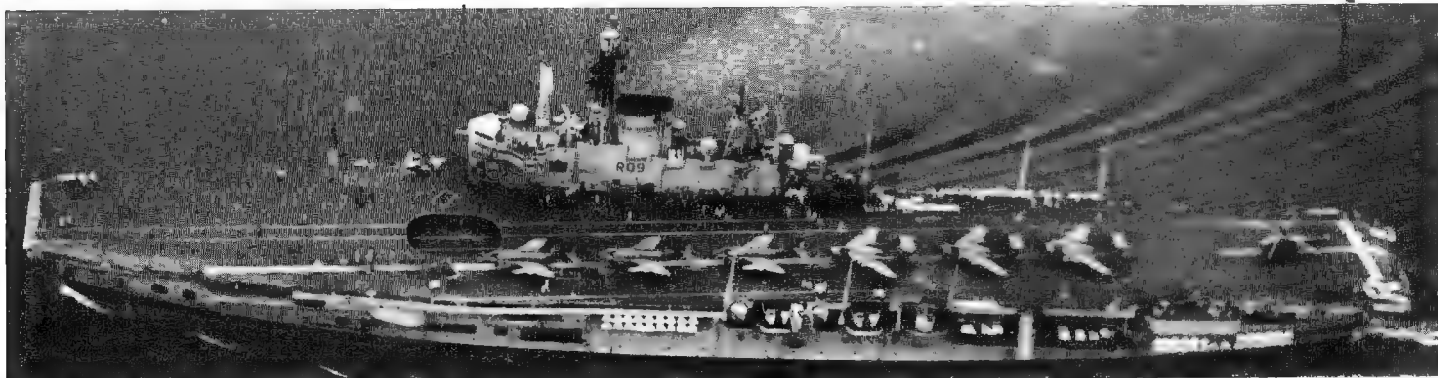


Aircraft Carriers continued



ARK ROYAL (after 1964 refit)

1965, Wright & Logan



ARK ROYAL

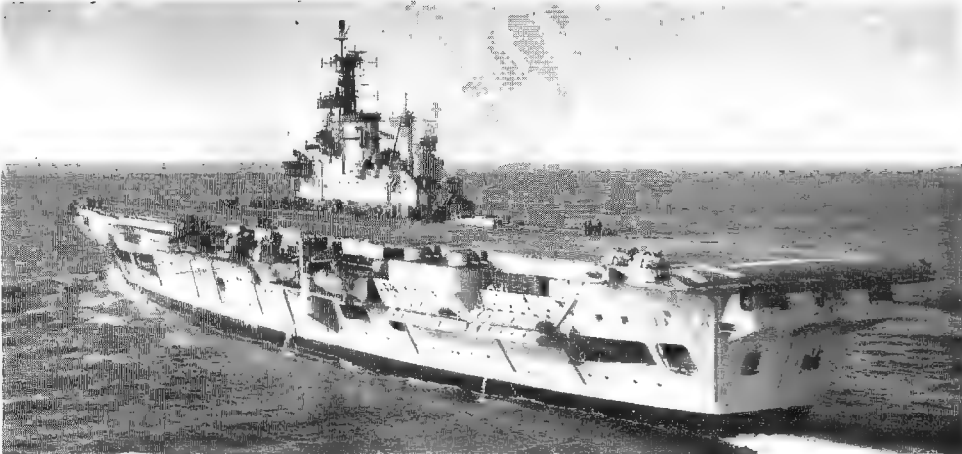
Added 1965, Official

ARK ROYAL (ex-Irresistible)

Deck Letter:	R
Pennant No.:	R 09
Builders:	Cammell Laird, Birkenhead
Laid down:	3 May 1943
Launched:	3 May 1950
Completed:	25 Feb. 1955
Displacement:	43,340 tons standard (53,340 tons full load)
Dimensions:	Length: 720 (p.p.), 810½ (o.a.) Beam: (hull): 112½, (overall): 164½ feet, Draught 36 feet
Guns:	4—4.5 inch d.p. (2 twin); 14—40 mm. (2 quadruple, 3 twin); 2—2 pdr. saluting (see Gunnery)
Aircraft:	40 plus 8 helicopters
Catapults:	2 improved steam
Machinery:	Parsons single reduction geared turbines, 4 shafts. S.H.P.: 152,000=31.5 kts.
Boilers:	8 Admiralty 3-drum type (400 lb. per sq. in. pressure, 600 degrees Fahrenheit superheat)
Oil fuel:	5,500 tons
Complement:	1,632 to 1,745 (including ship's air staff, but excluding complements of embarked squadrons) (2,295 to 2,345 with air squadrons)

General

Fitted with modern equipment for operating jet aircraft: including 5½ degrees angled deck, two centre line lifts, two improved steam catapults, a more effective deck landing aid, new type of arrestor gear, and improved hangar ventilation. First British aircraft carrier to be provided with steam catapults and associated installation. Began contractors' sea trials on 4 June 1954. First commissioned on 22 Feb. 1955. Had first side lift installed in a British aircraft carrier, situated amidships on the port side and serving the upper hangar. Ship originally cost £21,428,000. Refitted in 1959 when the side lift was removed, the deck park provided by the



ARK ROYAL

1960, Official

angled deck having, to a large extent, obviated its necessity, and a new lattice stump mast for a larger radar scanner stepped abaft the bridge. Refitted in 1961, when the deck landing projector sight, "Hilo" long range guidance system, and more powerful steam catapults were installed.

Gunnery

Originally mounted 16—4.5 inch in eight twin turrets, two on each beam forward and two on each beam aft, but the four 4.5 inch on the port side forward, temporarily plated over to provide the termination of the angled deck, were removed entirely in 1956 to allow unimpeded flying off. The 6-barrelled 40 mm. mounting before the bridge was also removed. The four 4.5 inch on the starboard side forward and the six

single 40 mm. were removed in 1959. The four 4.5 inch in the two forward turrets on the after sponsons and the 6-barrelled 40 mm. were removed in 1964.

Nomenclature

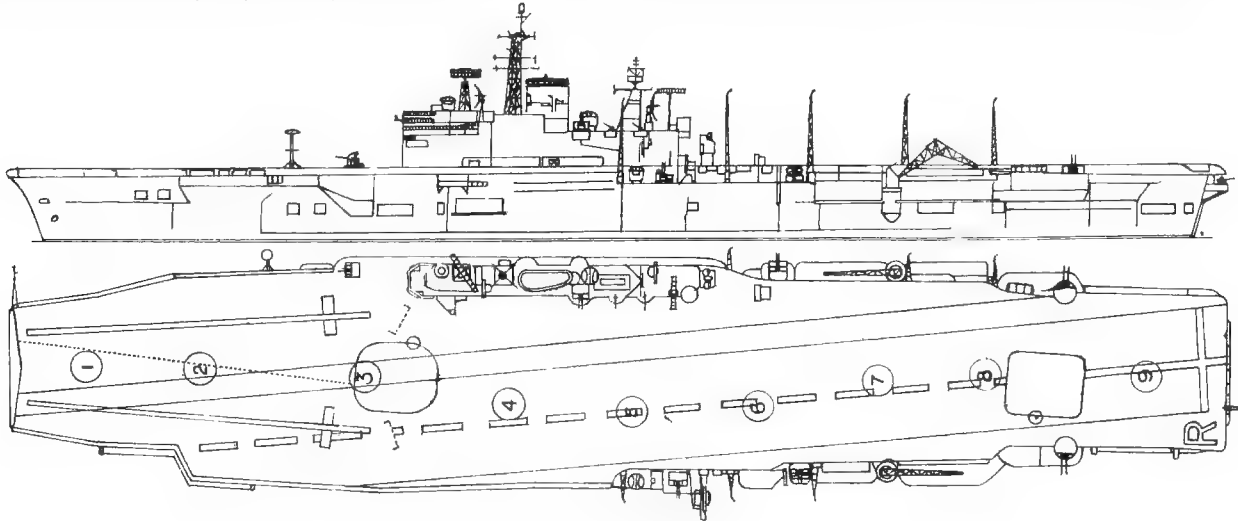
Following the sinking of the previous, Ark Royal in Nov. 1941, the name was allocated to a projected considerably larger aircraft carrier designated *Irresistible* (the present Ark Royal).

Photographs

Starboard quarter view, port broadside view, and overhead plan view, all before conversion, and showing side lift, in the 1959-60 and earlier editions.

Drawing

Port elevation and plan. Redrawn in 1965. See Gunnery. Scale: 128 feet=1 inch.





EAGLE (after reconstruction)

1964, Official

EAGLE (ex-Audacious)

Deck Letter: E
 Pennant No.: R 05
 Builders: Harland & Wolff, Belfast
 Laid down: 24 Oct. 1942
 Launched: 19 Mar. 1946
 Completed: 1 Oct. 1951
 Reconstructed: H.M. Dockyard, Devonport, 1959-64

Displacement: 44,100 tons standard (54,100 tons full load)
 Dimensions: Length: 720 (pp.), 811½ (o.a.)
 Beam (hull): 112½, (overall): 171 feet. Draught 36 feet.
 Guns: 8—4.5 inch d.p. (2 twin starboard, 2 twin port); 4—3 pdr.
 Guided weapons: 6 quadruple launchers for "Sea-cat" close range ship-to-air missiles (3 starboard, 2 port, 1 aft)
 Aircraft: 34 plus 10 helicopters
 Catapults: 2 steam (see Modernisation)
 Machinery: Parsons single reduction geared turbines, 4 shafts. S.H.P.: 152,000=31.5 kts.
 Boilers: 8 Admiralty 3-drum type
 Complement: 1,745 including ship's air staff, but excluding complements of embarked air squadrons; 2,750 max. accommodation

General

Ordered on 19 May 1942. Accepted into the Royal Navy on 1 Mar. 1952. Of 90 per cent welded construction. Damage control arrangements are exceptionally complete. Originally cost £15,795,000, Modernisation cost £31,000,000.

Modernisation

Fully angled flight deck at 8½ degrees, new flight deck armour, and 984 radar. Two steam (instead of hydraulic) catapults for launching the latest naval aircraft. Superstructure half as long again as former island and lattice mast shorter and thicker than previously stepped. The most up-to-date living accommodation is also incorporated. Reconstruction commenced end of 1959, and completed in 1964. Commissioned for service on 14 May.

Anti-Contamination

Equipped with an improved and built-in pre-wetting system to counteract contamination in the event of fall-out or chemical hazard.

Class

Sister ship of Ark Royal, see previous page. Two more large aircraft carriers of this type, *Africa* and original *Eagle* were cancelled at the end of the Second World War. Three much larger aircraft carriers, to have been named *Gibraltar*, *Malta* and *New Zealand*, were also cancelled.

Nomenclature

After the first aircraft carrier *Eagle* was lost in August 1942 the name was given to an aircraft carrier of the above class ordered from Vickers-Armstrongs, Ltd., Tyne, but this vessel was cancelled at the end of the war, and the sister ship, which had been begun as the *Audacious* was renamed *Eagle* on 21 Jan. 1946.

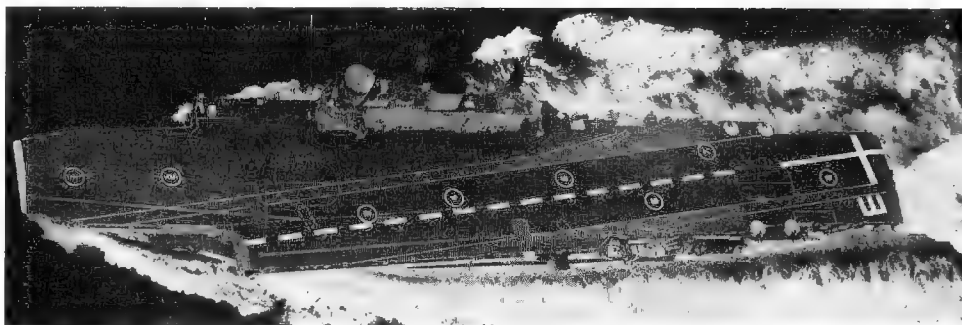
Drawing

Port elevation and plan after reconstruction. Drawn in 1964. Scale: 128 feet=1 inch.



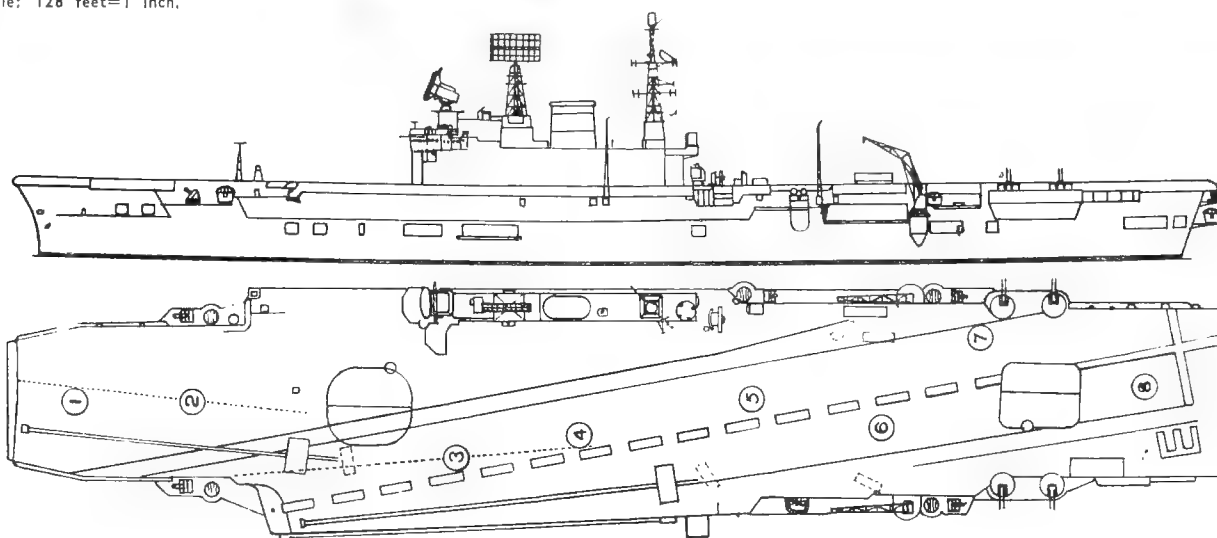
EAGLE (after reconstruction)

1964, Official

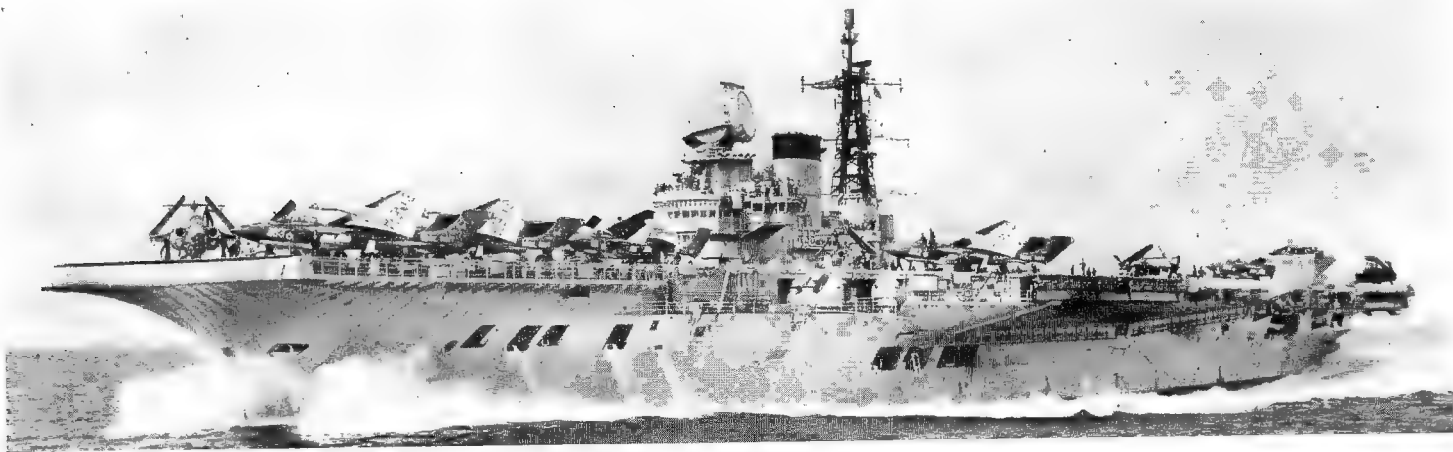


EAGLE (after reconstruction)

1964, Official



Aircraft Carriers—continued



VICTORIOUS

1964, Official

VICTORIOUS

Deck Letter:	Y
Pennant No.:	R 38
Builders:	Vickers-Armstrongs, Newcastle-on-Tyne
Engineers:	Wallsend Slipway Engineering, Wallsend-on-Tyne
Ordered:	13 Jan. 1937
Laid down:	4 May 1937
Launched:	14 Sep. 1939
Completed:	15 May 1941
Rebuilt:	H.M. Dockyard, Portsmouth, 1950-58
Displacement:	30,530 tons standard (35,500 tons full load)
Dimensions:	Length: 740 (pp.), 781 (o.a.) feet. Beam (hull): 103½ feet. Width (overall): 157 feet. Draught: 31 feet
Guns:	8—3 inch, 50 cal. AA. (2 twin forward, 2 twin aft) 4—3 pdr. 25 (10 Buccaneers, 10 Sea Vixens, 5 Gannets) and 8 Wessex A/S helicopters
Catapults:	2 steam
Armour:	4½" belt, 4½" hangar side, 3½" flight deck, 2½" hangar deck
Machinery:	3 sets Parsons geared turbines. 3 shafts. S.H.P.: 110,000=31 kts. (trial speed 32.2 kts.)
Boilers:	6 Foster Wheeler
Complement:	2,400

General

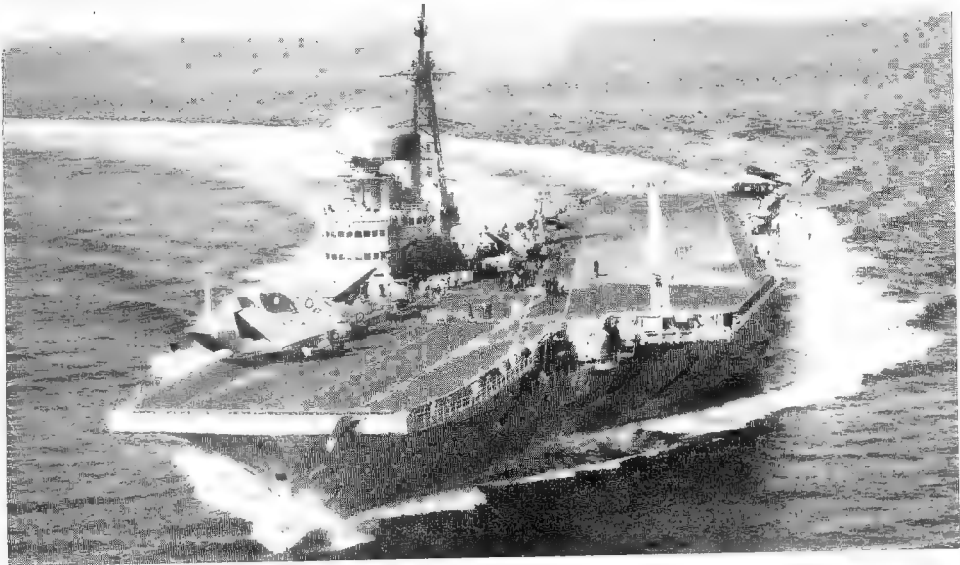
This ship originally had a displacement of 22,600 tons standard (29,100 tons full load), dimensions 751×95½×29½ feet, and a main armament of 16—4.5 inch guns.

Reconstruction

Virtually rebuilt in H.M. Dockyard, Portsmouth, 1950 to 1958. Re-launched (floated out of dry dock) on 19 May 1955. One of the best equipped aircraft carriers in the world. She has a fully angled flight deck, steam catapults and the most modern landing control system. Her electronic equipment is of the most advanced design. It includes a high powered radar set which can detect aircraft targets at considerable range and height. With this radar set goes a new display system which makes it possible to clarify the airborne target situation quickly and easily. This will enable her to exploit to the full the capabilities of the latest and next generations of naval aircraft. Two mirror sight deck landing aids and new high speed lifts were fitted. Her reconstruction involved increase in length by 30 feet, hull beam by 7½ feet, draught by 1½ feet. Her 3 inch guns are in twin mounts of new pattern. She was the first aircraft carrier in the Royal Navy with a fully angled deck. She has the latest arrester gear. Her modernisation included re-boiling, the installation of new armament and improved accommodation.

Drawing

Starboard elevation and plan. Scale 128 feet=1 inch.



VICTORIOUS

1962, Official

Refit

The ship underwent a long refit in H.M. Dockyard, Portsmouth from 1 May 1962 to 9 Aug. 1963, when four 3-inch AA. guns and six—40 mm. AA. guns were removed, flight deck strengthened, flying control position enlarged, access deck added outside island, projector sights substituted, catapults and communications systems improved and air-conditioning extended.

Flight Deck

An angle of 8½ degrees was achieved by extending the flight deck outwards for 41 feet on the port side for a length of 120 feet. It overhangs the ship's side by 35½ feet, the extension being supported by a very large sponson bracketed into the ship's structure, and counterbalanced by the weight of the island superstructure opposite on the starboard side.

The flight deck, over 775 feet long, is strong enough, to take the heaviest Fleet Air Arm machines, including the Blackburn Buccaneer. Two parallel track 145 feet catapults are fitted forward with aircraft positioners and jet blast deflectors. The arrester comprises four wires with an average span of 80 feet.

Electrical

The main generating capacity of the ship has been increased from 2,400 kW to 4,200 kW.

Appearance

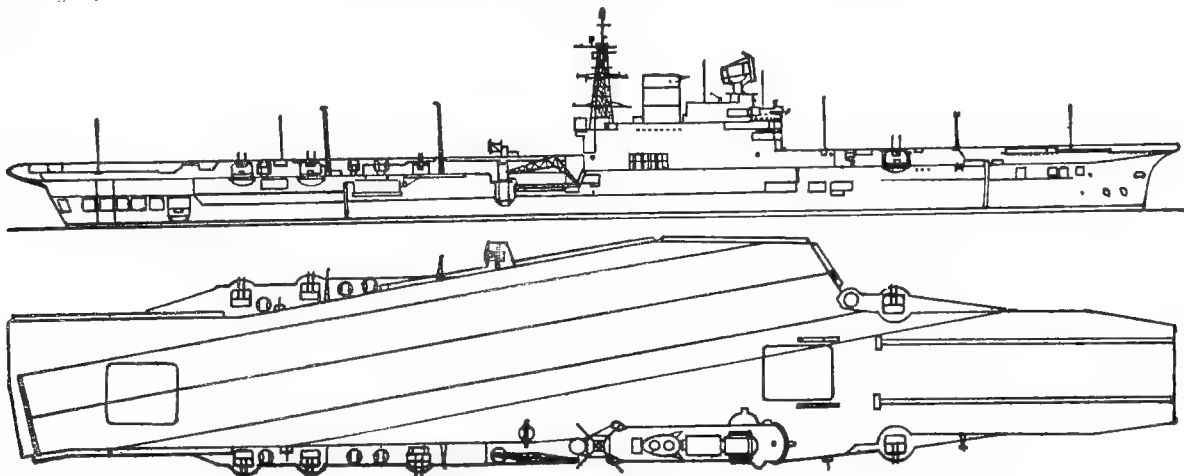
Easily distinguished from other carriers by rather smaller island, very large radar aerial surmounting the bridge, long overhang at the stern, massive angled deck terminal sponson and black band round top of funnel.

Engineering

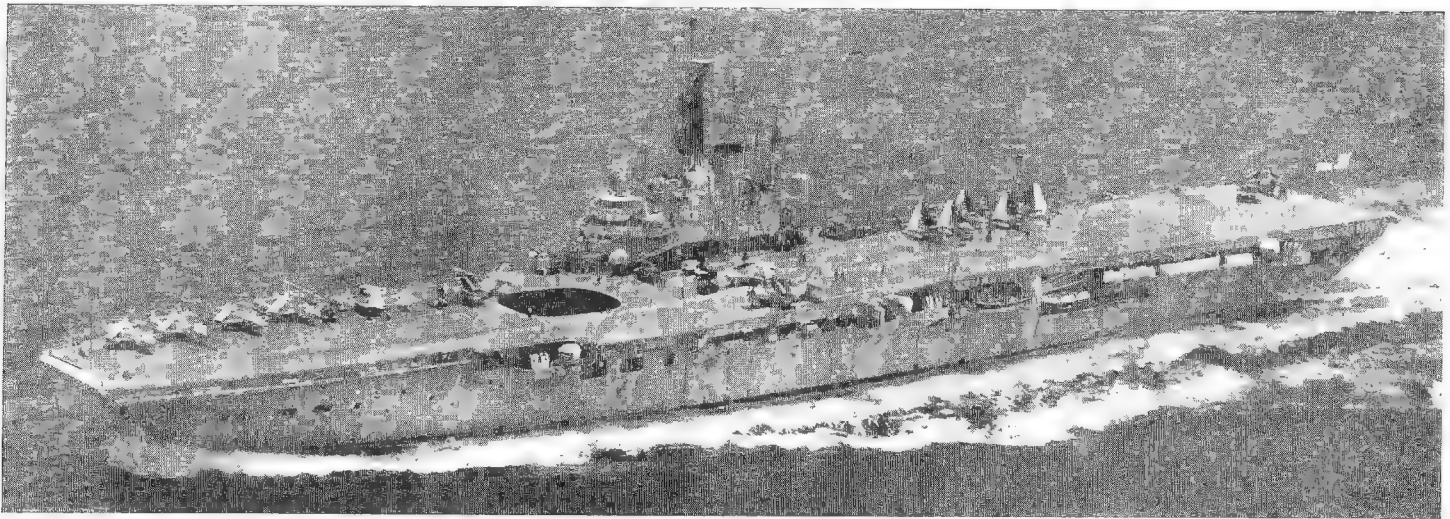
The ship can be steamed from the machinery control room by hydraulic remote controls. Steam conditions: 440 lb. per sq. inch pressure; 750 deg. Fah. superheat.

Photographs

A port surface view and a port bow oblique aerial view appears in the 1960-61 and 1961-62 editions; a port bow surface view and a starboard bow oblique aerial view in the 1959-60 edition; a starboard quarter surface view, a port quarter aerial view, and a starboard broadside aerial view in the 1962-63 and 1963-64 editions, and a dead overhead aerial plan view, showing the fully angled deck, in the 1959-60 to 1963-64 editions.



Aircraft Carriers—continued



CENTAUR (port oblique aerial view, showing forward lift well open)

Added 1962, Official

CENTAUR

Deck Letter: C
 Pennant No.: R 06
 Builders: Harland & Wolff, Belfast
 Laid down: 30 May 1944
 Launched: 22 Apr. 1947
 Completed: 1 Sep. 1953

Displacement: 22,000 tons standard, 27,000 tons full load
 Dimensions: Length: 650 (pp), 737½ (o.a.) feet. Beam: 90 feet. Extreme breadth: 123 feet. Draught: 27 feet
 Guns: 20—40 mm. AA. 1 6-barrelled, (5 twin, 4 single) 4—3 pdr. (saluting)
 Aircraft: 17 plus 8 helicopters
 Catapults: 2 steam
 Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 78,000=28 kts.
 Boilers: 4 Admiralty 3-drum type
 Complement: 1,028 (ship's company, including ship's air complement), 1,330 to 1,390 (including attached air squadron personnel)

General

Improvements incorporated during construction increased the originally designed displacement from 18,300 tons standard. An enlarged version of the "Majestic" design with propelling machinery of nearly twice the power to give an extra five knots speed (29.5 kts. on trials) and bringing it more into line with modern fleet aircraft requirements. Cost £10,434,000 excluding guns, aircraft and equipment. An "interim" (5½ degrees) angled deck was installed which necessitated the removal of three twin 40 mm. mounts and the extension of flight deck on port side amidships. Five arrestor wires spaced equally along the angled deck. Equipped with steam catapults and new arrestor gear in 1957. Completed extensive refit in Mar. 1961, a small sponson being fitted on the port side right aft. Refitted in 1963 with a single "bedstead" aerial on a small lattice tower in place of the light tripod mast at the forward end of the island.

Class

Of two sister ships, *Bulwark* was converted into a commando carrier in 1959-60, and *Albion* was similarly converted in 1961-62, see next page.

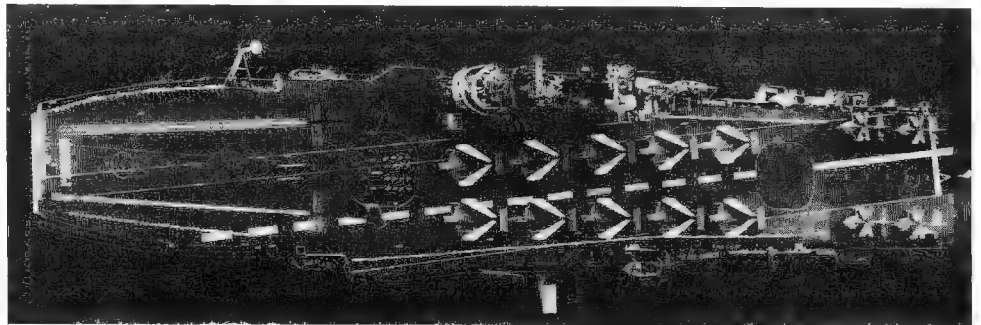
Of the other five ships of this class originally ordered, *Arrogant*, original *Hermes*, *Monmouth* and *Polyphemus* were cancelled in 1945; and *Hermes* (ex-*Elephant*) was completed to a modified design (see previous page).

Disposals of "Majestic" Class

Magnificent (lent to Canada from 1946 to 1957) was scrapped in 1965. *Powerful* (renamed *Bona-venture*) was completed for Canada; *Majestic* (renamed *Melbourne*) was completed for Australia; and *Terrible* (renamed *Sydney*) was sold to Australia. *Hercules* was sold to India in 1957 for completion and modernisation and was commissioned for service and renamed *Vikrant* in Mar. 1961. *Leviathan* (suspended in 1946 and never completed) was awaiting disposal in 1965.

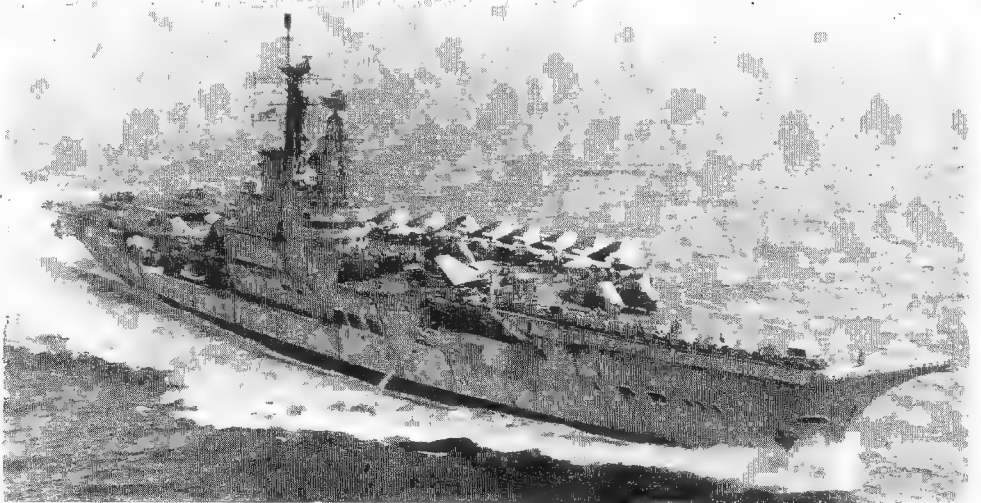
Disposals of "Colossus" Class

Venerable (renamed *Karel Doorman*) was sold to Netherlands in 1948. *Colossus* (renamed *Arromanches*) was sold to France in 1951; two were completed as maintenance aircraft carriers—*Perseus* (scrapped in 1958) and *Pioneer* (scrapped in 1954). *Vengeance* was sold to Brazil in 1956 and after being modernised was commissioned under new name *Minas Gerais* in Dec. 1960. *Warrior* was sold to Argentina in July 1958 and was commissioned under new name *Independencia* in Jan. 1959. *Glory* was scrapped in 1961 and *Ocean* and *Thesus* in 1962.



CENTAUR (aerial plan view, showing angled deck)

1965, Official



CENTAUR

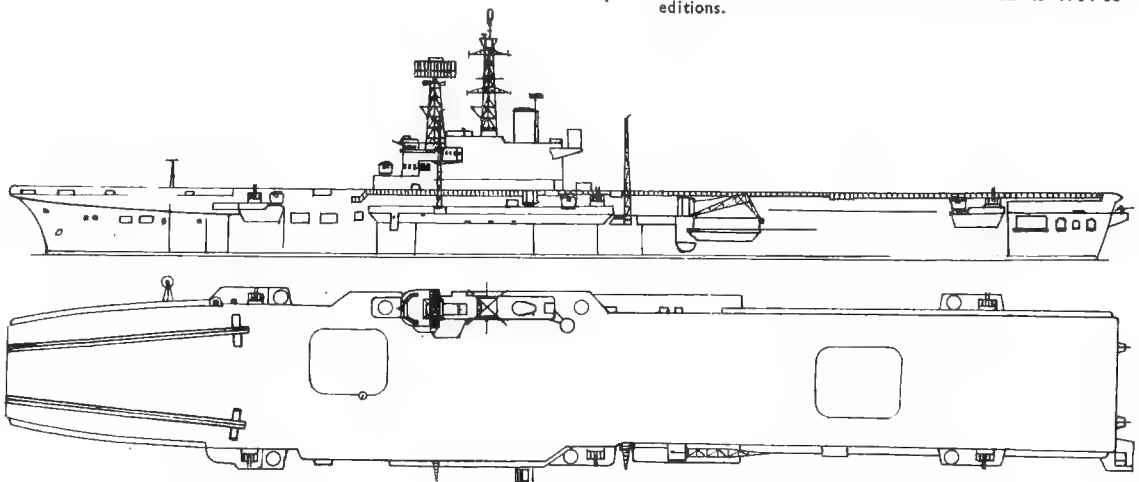
1964, Official

Drawing

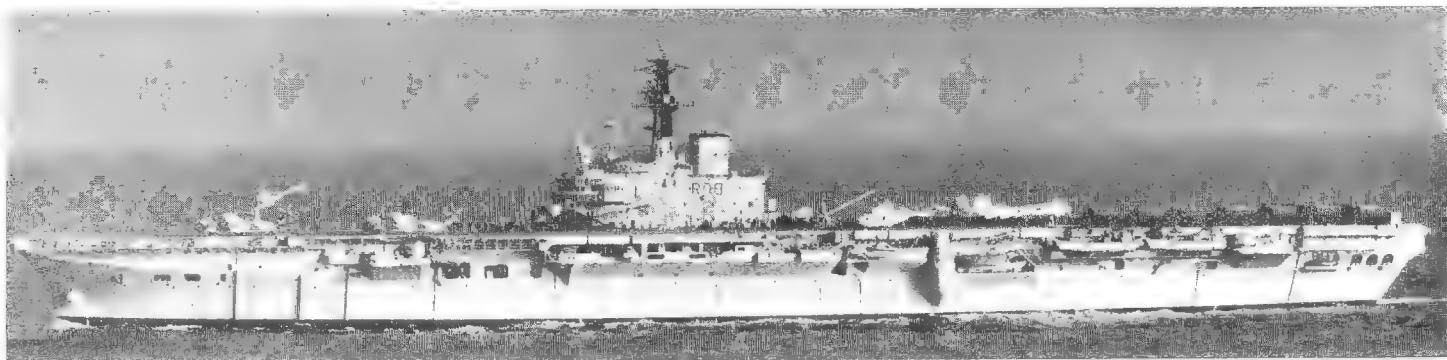
Port elevation and plan. Scale: 128 feet=1 inch. The 6-barrelled 40 mm. AA. gun abaft the island has been removed.

Photographs

A starboard quarter oblique aerial view appears in the 1957-58 to 1959-60 editions, a starboard broadside view in the 1958-59 to 1961-62 editions, a port bow oblique aerial view in the 1960-61 to 1963-64 editions, and a dead overhead view in the 1961-62 to 1964-65 editions.



COMMANDO CARRIERS



BULWARK

1964, Official

2 Modified "Centaur" Class

Name:	ALBION	BULWARK
Deck Letter:	A	B
Pennant No.:	R 07	R 08
Builders:	Swan, Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne	Harland & Wolff Ltd., Belfast
Engineers:	Wallsend Slipway & Engineering Co. Ltd., Tyne	Harland & Wolff Ltd., Belfast
Laid down:	23 Mar. 1944	10 May 1945
Launched:	6 May 1947	22 June 1948
Completed:	26 May 1954	4 Nov. 1954
Converted:	1961-62	1959-60

Displacement:	23,300 tons standard, 27,300 tons full load
Dimensions:	Length: 650 (pp.), 737½ (o.a.) feet. Beam: 90 feet. Extreme breadth: 123½ feet Draught 28 feet
Guns:	8—40 mm. AA. (4 twin); 4—3 pdr. See Gunnery notes
Aircraft:	16 helicopters
Landing craft:	4 LCA
Machinery:	Parsons geared turbines. 2 shafts. S.H.P.: 78,000=28 kts.
Boilers:	4 Admiralty 3-drum type
Complement:	1,035 plus 733 Royal Marine Commando and troops (900 in Bulwark). Accommodation for 1,923 to 1,937 officers and men



ALBION

1964, Official

General
Former sister ships of *Centaur*, see previous page. Originally cost £9,836,000 and £10,386,000, respectively, excluding guns, aircraft and equipment. Converted into commando carriers in 1961 (*Albion*) and 1959 (*Bulwark*). A full strength commando is available, which the ships can quickly transport and land complete with equipment, wherever required. Their helicopters are also able to disembark the commando's vehicles. The ships have sufficient stores and fuel to support the commandos in active operations ashore, and can re-embark the unit speedily when required. They not only reinforce the traditionally close association of the Corps of Royal Marines with the Royal Navy, but give these versatile troops greater mobility and usefulness, and enable them to be fully self-supporting. The ships are fully convertible to the anti-submarine role. They are able, at short notice, and entirely within their own resources to adapt their helicopters for anti-submarine work. *Bulwark*, the first ship of her kind to serve in the Royal Navy, was converted at H.M. Dockyard, Portsmouth, in 1959 and commissioned as a commando carrier on 19 Jan. 1960. *Albion* entered H. M. Dockyard, Portsmouth, in Dec. 1960, and was taken in hand in Feb. 1961 for conversion which was completed in July 1962. She commissioned on 1 Aug. 1962.

Gunnery
Eight 40 mm. AA. guns were removed during the initial conversion of *Bulwark* to provide space for four assault landing craft carried at built-in gantries, leaving her with 18—40 mm. AA. guns. As converted *Albion* has one twin 40 mm. mounting in each quadrant; and *Bulwark* has since also been reduced to this armament.

Photographs
A port broadside aerial view, and a dead overhead plan view of *Bulwark* after conversion appear in the 1960-61 edition, a starboard surface view in the 1960-62 editions, another aerial plan view in the 1961-62 edition, a port broadside aerial view with Whirlwind helicopters flying above in the 1961-62 to 1963-64 editions, and starboard broadside aerial view with helicopter formation in the 1962-63 and 1963-64 editions. A port broadside view of *Albion* after conversion appears in the 1962-63 edition (Addenda) and a starboard quarter surface view in the 1962-63 and 1963-64 editions.

Drawing
Port elevation and plan of *Bulwark*. Drawn in 1960. Scale: 128 feet=1 inch.

Conversion

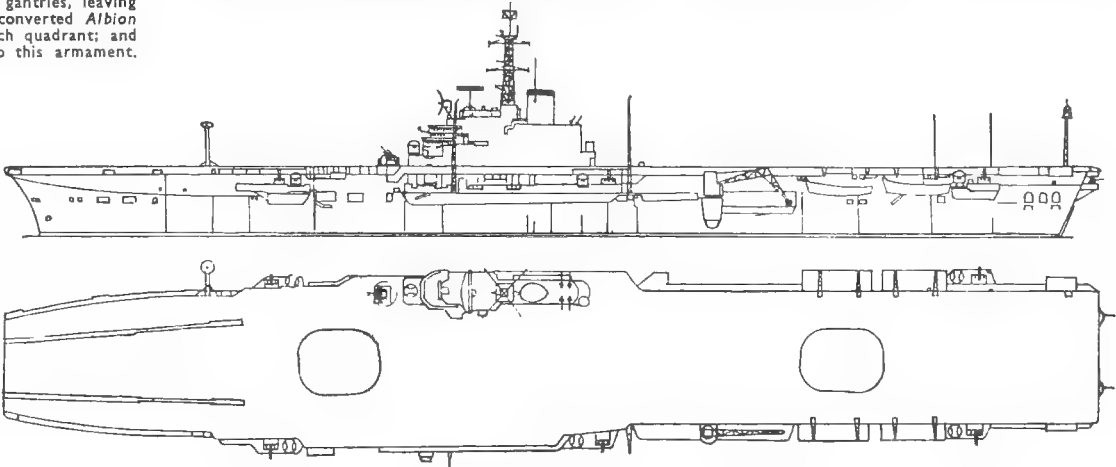
Basically *Bulwark* was not changed during her initial conversion, although the fixed wing capability, the arrestor wires and catapults were removed. Various alterations and modifications were made to render the ship suitable as an all-helicopter troop carrier with 16 Westland Whirlwind aircraft, which will be replaced at a later date by the Wessex, and four landing Craft (Assault). The ship was fitted with the most extensive air conditioning system in the Royal Navy. In 1963

Bulwark was further refitted to the same standard as *Albion*, with slight variation in air conditioning.

In her initial conversion *Albion* embodied a number of improvements and was able to carry Wessex helicopters and a larger military force. Her extensive modifications included alteration to the angled flight deck and the removal of catapult and arrestor gear.

Engineering

The three-bladed propeller in *Bulwark* was replaced by a four-bladed propeller.



CRUISERS



TIGER

1964, Wright & Logan

Conversion
Early in 1965 *Blake* was taken in hand for conversion into a helicopter carrier at H.M. Dockyard, Portsmouth, expected to take about two years. The reconstruction involves the suppression of the after 6 inch turret and the provision of a flight deck and hangar for operating a flight of four Wessex helicopters (see illustration below). *Lion* and *Tiger* will be similarly converted in due course.

3 "Tiger" Class

- Displacement: 9,550 tons standard (11,700 tons full load)
Dimensions: Length: 538 (pp.), 549 (w.l.) 555½ (o.a.) feet. Beam: 64 feet. Draught: 21 feet
Guns: 4—6 inch (2 twin), 6—3 inch (3 twin)
Armour: 3½"—3½" belt, 4" C.T., 2"—1" turrets, 2" deck
Machinery: 4 Parsons geared turbines. 4 shafts. S.H.P.: 80,000=31.5 kts.
Boilers: 4 Admiralty 3-drum type
Oil fuel: 1,850 tons
Radius: 2,100 miles at full power, 4,000 at 20 kts., 6,500 at 13 kts.
Complement: 716 (52 officers, 664 ratings)

General
Designed to provide close cover and anti-aircraft support for convoys and aircraft carrier groups and to provide support for assault landings. They have the versatility to act in a number of other roles and are equipped to play an active part in military and policing duties in any part of the world. As completed they exceeded their originally designed displacement of 8,000 tons. Work on them was stopped in July 1946, and construction was suspended for eight years. The decision to complete them was announced on 15 Oct. 1954, and they were dismantled ready for resumption of construction to a new design in 1955. *Tiger* cost £13,113,000, *Lion* £14,375,000 and *Blake* £14,940,000.

Gunnery
As originally designed guns included nine 6 inch, ten 4 inch and 16 smaller. The ships carry fully automatic guns of advanced design. The main armament comprises four 6 inch mounted in two twin turrets, equally effective in surface and anti-aircraft roles. The rate of fire is twenty rounds per minute, more than twice that of any previous cruiser. The secondary armament consists of six 3 inch mounted in three twin turrets, capable of 120 rounds per minute, comparable with the light anti-aircraft guns of the Second World War. The guns are fitted with a comprehensive direction system which enables all turrets to be controlled by radar. Each 6 inch turret weighs 163 tons and each 3 inch turret 38½ tons. *Tiger* has small radar aerials on top of each 3 inch gun-house.

Operational
Ships are controlled from a totally enclosed bridge the first fitted in British cruisers. A 200-line automatic telephone exchange facilitates internal communications.

Engineering
The main machinery is largely automatic and can be remotely controlled. Steam conditions at 400 lbs. per sq. in. working pressure and 640 deg. Fahrenheit superheat. Propellers 285 revolutions per minute.

Electrical
Four turbo-generators provide over 4,000 kilowatts of alternating current, the first time this type of power was used in British cruisers.

Torpedo
Originally designed to have eight 21-inch torpedo tubes in two quadruple mountings.

Habitability
Complete air-conditioning is installed to ensure a comfortable atmosphere in any climate. Generous electrical equipment is provided for cooking, deck-cleansing, paint-scaling, and television, cinema and radio rediffusion installations. Accommodation is of a much higher standard than in previous cruisers. Each man has a bunk. Fluorescent lighting is installed. Separate dining halls.

Photographs
A starboard quarter oblique aerial view of *Lion* appears in the 1962-63 to 1964-65 editions, a starboard broadside view in the 1960-61 and 1961-62 editions, and a dead overhead aerial view of *Tiger* in the 1960-61 edition.

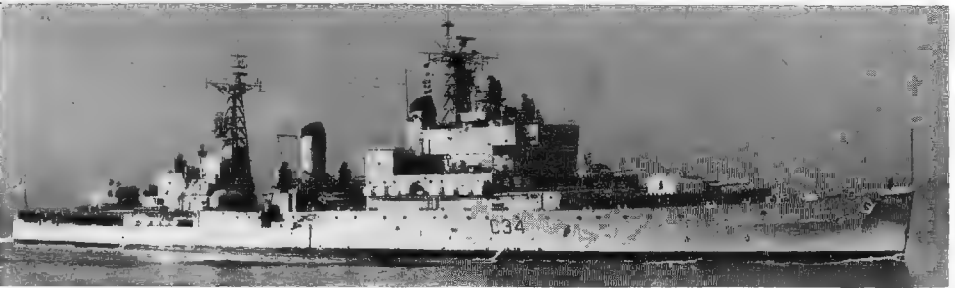
Nomenclature
The name of *Defence* was changed to *Lion* in 1957 (announced 8 Oct. 1957).

Class
Hawke, of this class, laid down at H.M. Dockyard, Portsmouth in Aug. 1944, was cancelled in 1946, as was *Bellerophon* (ex-*Tiger*) a cruiser of enlarged design, ordered from Vickers-Armstrongs.

Drawing
Port elevation and plan. Redrawn in 1960. Scale. 1/28 feet=1 inch.

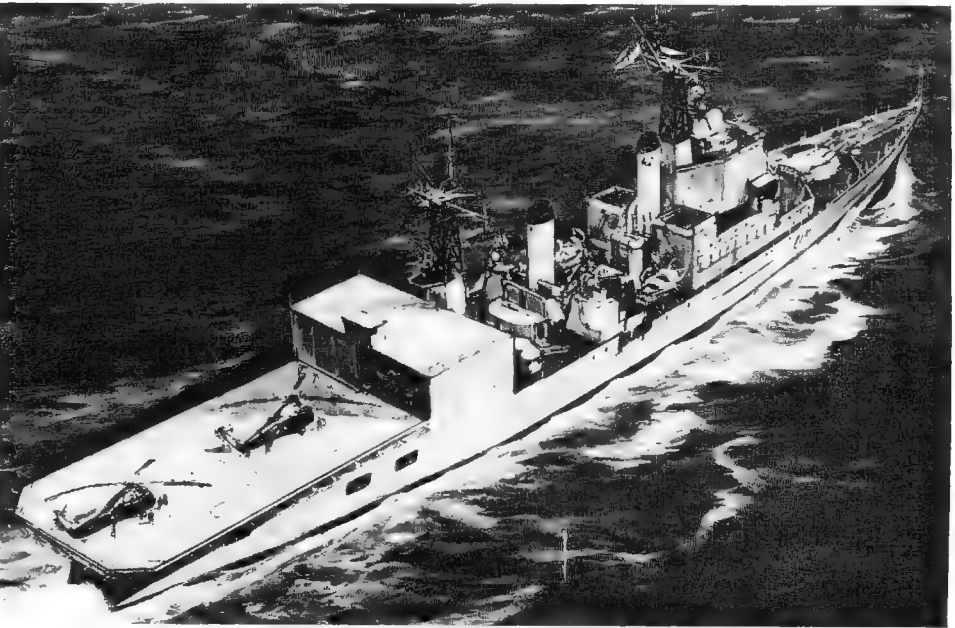
Name	Pen. No.	Builders and Engineers	Laid down	Launched	Completed
BLAKE (ex-Tiger, ex-Blake)	C 99	Fairfield S.B. & Eng. Co. Ltd., Govan	17 Aug. 42	20 Dec. '45	8 Mar. '61
LION (ex-Defence)	C 34	Scotts' S.B. & Eng. Co. Ltd., Greenock*	24 June* 42	2 Sep. 44	20 July 60
TIGER (ex-Bellerophon)	C 20	John Brown & Co. Ltd., Clydebank	1 Oct. 41	25 Oct. 45	18 Mar. 59

* To launching stage. Completed by Swan, Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne; Main machinery completed by the Wallsend Slipway & Engineering Co. Ltd., Wallsend-on-Tyne.



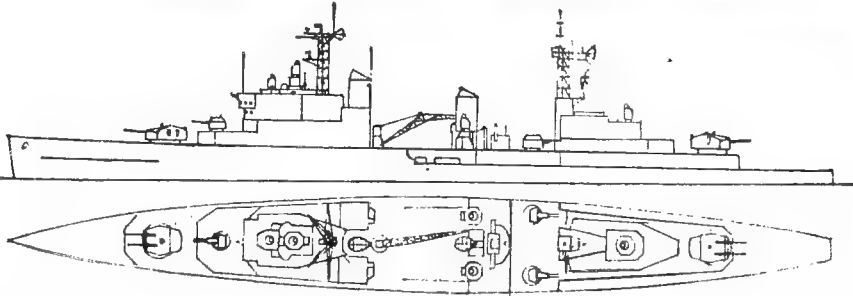
LION

1965, Wright & Logan



BLAKE (artist's impression as helicopter carrier)

1964, Official



Disposals of older Cruisers
Of the "Colony" class, *Jamaica* was scrapped in 1960 Kenya in 1962, *Bermuda* and *Mauritius* in 1965, and *Gambia* is to be scrapped in the near future.
Of this class, *Nigeria* was sold to the Indian Navy in 1954 and renamed *Mysore*. Two others, *Fiji* and *Trinidad*, were lost in action during the Second World War.

Of the "Ceylon" class, *Newfoundland* was transferred to the Peruvian Navy at Portsmouth on 30-Dec. 1959 and renamed *Almirante Grau*, and *Ceylon* was transferred to the Peruvian Navy at Portsmouth on 9 Feb. 1960 and renamed *Coronel Bolognesi*.
Of later cruisers, *Superb* was scrapped in 1961, and *Swiftsure* in Oct. 1962.

Cruisers—continued



BELFAST

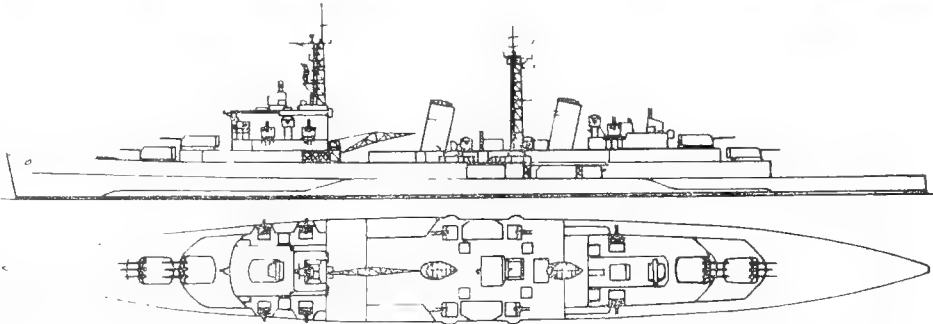
1963, Wright & Logan

BELFAST

Pennant No.:	C 35
Builders:	Harland & Wolff, Ltd., Belfast
Laid down:	10 Dec. 1936
Launched:	17 Mar. 1938
Completed:	3 Aug. 1939
Displacement:	11,550 tons standard (14,931 tons full load)
Dimensions:	Length: 579 (pp.), 613½ (o.a.) feet. Beam: 69 feet. Draught: 23 (max.) feet
Guns:	12—6 inch, 8—4 inch AA., 8—40 mm. AA.
Tubes:	Removed (see Torpedoes)
Armour:	5"—3" side, 4" C.T., 2½" turrets (see Protection)
Machinery:	Parsons geared turbines, 4 shafts. S.H.P.: 80,000 32.5 kts. (max.) originally designed, 31 kts. service. 30 kts. sea speed
Boilers:	4 Admiralty 3-drum type
Oil fuel:	2,260 tons
Radius:	8,000 miles at 14 kts.
Complement:	710 (52 officers, 658 men)

General
Improved "Southampton" type. The largest cruiser in the Royal Navy. Designed displacement was 10,000 tons with beam of 63½ feet, since increased. Built under the 1936 Navy Estimates. Internal subdivision is exceptionally complete. Was practically rebuilt after being heavily damaged by a mine in the early months of the Second World War, beam being increased and other alterations made. Refitted at Devonport early in 1963 and placed in Reserve.

Gunnery
Until her 1955-59 reconstruction the light anti-aircraft armaments comprised two 8-barrelled 2 pdr. and nine single 40 mm.



Torpedoes
The 6—21 inch torpedo tubes originally mounted in triple banks were removed during the 1956-59 refit

First Reconstruction
When she was mined her back was broken, and in the course of repairs, to strengthen her, she was fitted with an external bulge adding approximately 2½ feet to her beam. This bulge roughly covered the same areas as the armour belt above the water line. Besides providing additional under-water protection, it improved the ship's stability, thereby enabling her to retain her entire 6-inch armament despite extra top weight having been added.

Second Reconstruction
In 1955 Belfast underwent her second reconstruction and modernisation. This was completed on 12 May, 1959. Extensive modifications included lattice masts, a new operations room, new type covered bridge, modernised armament and improved habitability. This reconstruction cost £5,553,000.

Drawing
Represents Belfast after reconstruction. Port elevation and plan. Redrawn in 1959. Scale: 128 feet=1 inch.

Protection
Reported to have been designed to withstand 8-inch shellfire. The armour extends over the entire length of the citadel, and the protective deck right across the ship's breadth above the magazines.

Photographs
A dead broadside view of Belfast appears in the 1959-60 edition (Addenda), a starboard broadside view of the ship before reconstruction in the 1957-58 and 1958-59 editions, a port broadside view after reconstruction in the 1959-60 to 1961-62 editions, and a port oblique aerial view appears in the 1962-63 edition.

Class
Sister ship Edinburgh was lost in action on 2 May 1942.



SHEFFIELD

Added 1960. Official

SHEFFIELD

Pennant No.:	C 24
Builders:	Vickers-Armstrongs Ltd., Tyne
Laid down:	31 Jan. 1935
Launched:	23 July 1936
Completed:	25 Aug. 1937
Displacement:	9,100 tons standard (12,400 tons full load)
Dimensions:	Length: 558 (pp.), 584 (w.l.), 591½ (o.a.) feet. Beam: 61½ (w.l.), 64 (o.a.) feet. Draught: 21 (max.) feet
Guns:	9—6 inch, 8—4 inch AA., 18—40 mm. AA.
Tubes:	6—21 inch (tripled)
Armour:	4"—3" side, 4" C.T., 2"—1" turrets, 2" deck.
Machinery:	Parsons geared turbines, 4 shafts. S.H.P.: 75,000=32.5 kts. (designed)
Boilers:	4 Admiralty 3-drum type
Oil fuel:	1,970 tons
Radius:	7,000 miles at 14 kts.
Complement:	706 to 717

General
The last survivor of the eight handsome cruisers of the "Southampton" class. Built under the 1934 Navy Estimates. Ordered on 17 Dec. 1934. Protection was somewhat better than in previous classes. Special ventilating trunks were installed, with openings on either side of the hull at the break of the deck level abreast "B" turret. In 1959-60 she was refitted and put in a state of preservation in operational reserve at Portsmouth. Headquarters of the Commodore Reserve Ships and living ship. On the Sales List in 1965.

Gunnery
At end of the Second World War "X" triple 6-inch turret was removed and replaced by 40 mm. anti-aircraft guns. The centre gun of each 6 inch turret is mounted slightly farther back than other two. Each turret weighs 135 tons. Each gun weighs 7 tons. Shell fired, weighs 1 cwt. New 4 inch directors abreast forefunnel.

Reconstruction
Reconstructed and modernised, modifications including new bridge structure rebuilt with revised armament arrangements and air conditioning, new lattice foremast, but tripod mainmast retained. She underwent a long refit in 1949-51 and was again extensively modified June 1956-June 1957.

Anti-Radiation
The ship was fitted with modern devices to fight in areas of atomic radiation. Her bridge was enclosed and she was fitted with powerful pre-wetting systems.

Engineering
Engined by Vickers-Armstrongs Ltd., Barrow. Each propeller weighs 12½ tons. Sea speed is about 32 kts.

Appearance
Larger than "Tiger" class, with raked funnels and former hangar structure. Lattice foremast and tripod mainmast.

Photographs
A larger photograph of Sheffield appears in the 1957-58 to 1959-60 editions.

Drawing
A plan and elevation drawing of this class appears in the 1959-60 edition. Also see port elevation silhouette drawing of Sheffield on page 264 of this edition.

Class
Sister ships Gloucester, Manchester and Southampton were lost during the Second World War.

Disposals
Sister ships Glasgow and Liverpool were scrapped in 1958, Newcastle in 1959 and Birmingham in 1960.

GUIDED MISSILE ARMED DESTROYERS



DEVONSHIRE (after 1965 refit)

1965, Wright & Logan



HAMPSHIRE

6 + 2 "County" Class

Displacement:	5,200 tons standard (6,200 tons full load)
Dimensions:	506 (w.l.), 520½ (o.a.)×54×20 (max.) feet
Guns:	4—4.5 inch (two twin turrets forward); 4 saluting
Guided weapons:	1 twin launcher aft for "Seaslug" ship-to-air guided missiles 2 quadruple launchers for "Seacat" close range ship-to-air missiles
Aircraft:	1 Westland Wessex helicopter
Machinery:	2 sets geared steam turbines, boosted by 4 gas turbines. 2 shafts. S.H.P.: 60,000=32.5 kts. (see Engineering)
Boilers:	2 Babcock & Wilcox
Complement:	440 (33 officers, 407 ratings)

General

Devonshire and Hampshire, designed to embody the newest developments in the destroyer field, were projected under the 1955-56 Navy Estimates, and it was later found possible to arm them with guided weapons instead of anti-aircraft guns, and also to carry modern anti-submarine, radar and communication equipment. Kent and London of this super-destroyer type were provided under the 1956-57 Navy Estimates. It was stated in the 1957-58 Navy Estimates that the design had emerged larger than former conventional types of Fleet Escort. They have powerful armament, and endurance giving them a considerable capacity for operating independently. Fife and Glamorgan were ordered under the 1961-62 Navy Estimates. All six ships are fitted with stabilisers. Two more ships of the class, to be named Antrim and Norfolk, were ordered under the 1964-65 Navy Estimates.

Torpedoes

The helicopter carries a new type of homing torpedo to combat submarines.

Anti-Submarine

In addition to anti-submarine torpedoes and an anti-submarine helicopter, the ships are fitted with the latest underwater detection equipment for anti-submarine work.

Operational

Ships of this class have three main roles:— 1. Escort duties with a task group, including the ability to provide guided weapon anti-aircraft defence for the group and to augment its anti-submarine capability; 2. Operations as part of a task unit of light forces with the ability to bombard in support of land forces and to attack light forces with gunfire; 3. Police duties in peace-time in any part of the world.

The ships are designed to operate in "fall out" areas. As many deck installations are under cover the vessels have clean lines, and this facilitates "washing down" in the event of attack by nuclear weapons.

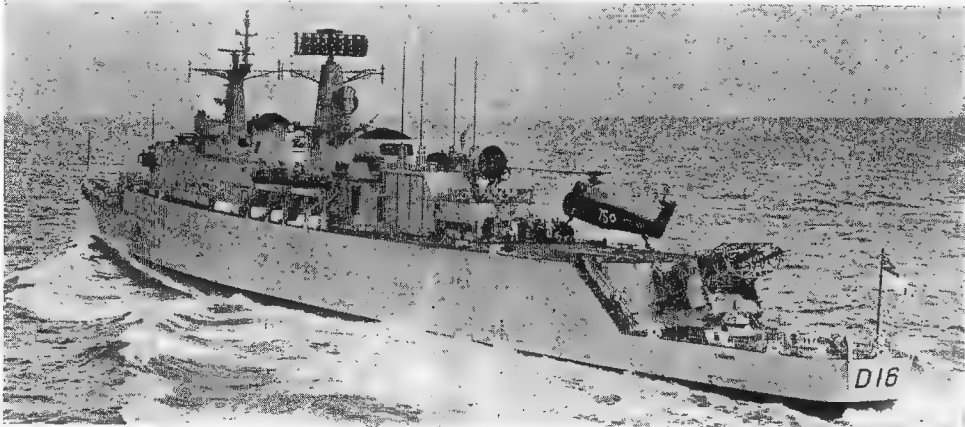
Gunnery

The 4—4.5 inch guns are radar controlled, fully automatic dual-purpose quick-firing weapons for attack and defence against ships and aircraft.

Engineering

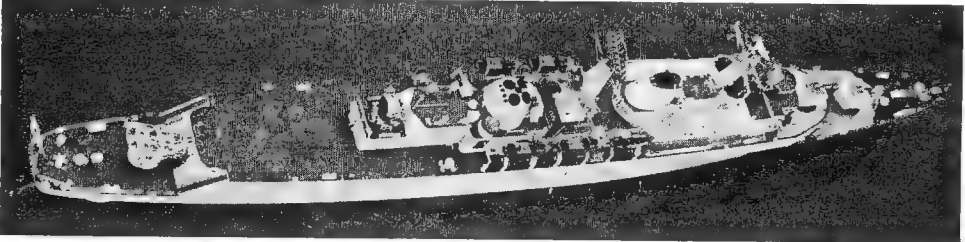
These are the first vessels of their size to have COSAG (combined steam and gas turbine) machinery of exceptionally compact and light design, enabling the amount of fighting equipment to be increased. The steam and gas turbines are geared to the same shaft. Each shaft set consists of a high pressure and low pressure steam turbine of 15,000 S.H.P. combined output plus two G.6 gas turbines each of 7,500 S.H.P. The gas turbines

Name	No.	Builders	1964, courtesy Godfrey H. Walker, Esq.		
			Laid down	Launched	Completed
ANTRIM		Fairfield S.B. & Eng. Co. Ltd., Govan			
DEVONSHIRE	D 02	Cammell Laird & Co. Ltd., Birkenhead	9 Mar. 59	10 June 60	15 Nov. 62
FIFE	D 20	Fairfield S.B. & Eng. Co. Ltd., Govan	1 June 62	9 July 64	
GLAMORGAN	D 19	Vickers-Armstrongs Ltd., Newcastle-on-Tyne	13 Sep. 62	9 July 64	
HAMPSHIRE	D 06	John Brown & Co. (Clydebank) Ltd., Glasgow	26 Mar. 59	16 Mar. 61	15 Mar. 63
KENT	D 12	Harland & Wolff Ltd., Belfast	1 Mar. 60	27 Sep. 61	15 Aug. 63
LONDON	D 16	Swan, Hunter & Wigham Richardson, Wallsend	26 Feb. 60	7 Dec. 61	14 Nov. 63
NORFOLK		Swan, Hunter & Wigham Richardson, Wallsend			



LONDON

1964, Official



KENT

1964, Official

provide a high concentration of compact power and are used to supplement the steam power for high speed work. They are also able to develop their full power from cold within a few minutes, providing unprecedented mobility, and enabling ships lying in harbour without steam to get under way instantly in an emergency.

Guided Weapons

These vessels were the first to join the Fleet armed with the guided missile "Seaslug" for long ranges and "Seacat" weapons for short ranges (launchers for which are mounted abaft the after funnel).

Helicopter

The landing space for the helicopter is at the after end of the upper deck where anti-submarine weapons would be normally mounted: The helicopter is the first to be fitted as a complete "hunter killer." It carries dipping sonar and homing torpedoes.

Radar

Each ship is exceptionally well equipped with the latest "watching" and "warning" radar.

Habitability

All vessels have the latest accommodation standards and are fully air-conditioned.

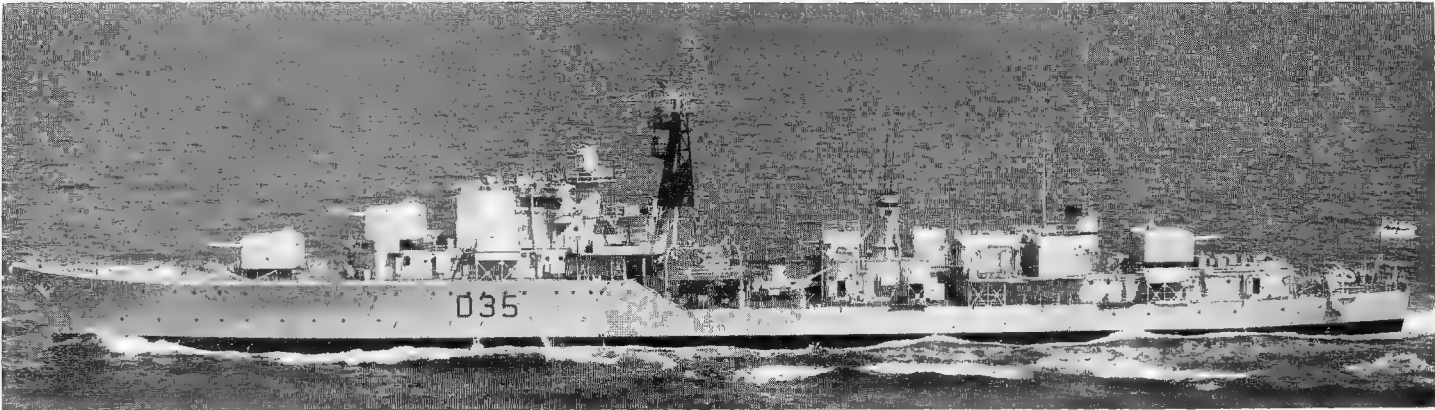
Photographs

Photographs of Devonshire, firing a "Seaslug" guided missile appear in the 1962-63 to 1964-65 editions.

Appearance

Devonshire and Hampshire are practically identical. Kent and London differ in some features, notably in the aftermast being stepped further aft. Fife and Glamorgan will again differ from the first two pairs. These and two later ships will carry the even more powerful "Seaslug II" system, later to be fitted to the first four.

DESTROYERS



DIAMOND

1964, Official

8 "Daring" Class

Displacement:	2,800 tons standard (3,600 tons full load)
Dimensions:	366 (pp.), 375 (w.l.), 390 (o.a.) \times 43 \times 18 (max.) feet
Guns:	6—4.5 inch, in three twin turrets, two forward and one aft, 4 or 6—40 mm. Bofors AA. (See Gunnery)
Tubes:	Decoy, Diamond, Diana, Duchess: 5—21 inch, in one pentad mounting. (See Torpedo Tubes)
Guided weapons:	(See Guided Missiles)
A/S weapons:	Squid triple-barrelled depth charge mortar
Machinery:	Parsons double reduction geared turbines. English Electric design in Yarrow ships. 2 shafts. S.H.P.: 54,000=34.75 kts. (designed), 30.5 kts. sea speed
Boilers:	2 Foster-Wheeler in Dainty, Defender, Diamond and Duchess 2 Babcock & Wilcox in Daring, Decoy, Delight and Diana
Radius:	1,700 miles at full power, 4,400 miles at 20 kts.
Complement:	278 to 297 (Leaders 308)

Name	Pennant No.	Builders	Laid down	Launched	Completed
DAINTY	D 108	J. Samuel White & Co. Ltd., Cowes	17 Dec. 45	16 Aug. 50	26 Feb. 53
DARING	D 05	Swan, Hunter & Wigham Richardson	29 Sep. 45	10 Aug. 49	8 Mar. 52
DECOY	D 106	Yarrow & Co. Ltd., Scotstoun	22 Sep. 46	29 Mar. 49	28 Apr. 53
DEFENDER	D 114	Alex. Stephen & Sons Ltd., Govan	22 Mar. 49	27 July 50	5 Dec. 52
DELIGHT	D 119	Fairfield S.B. & Eng. Co. Ltd., Govan	5 Sep. 46	21 Dec. 50	9 Oct. 53
DIAMOND	D 35	John Brown & Co. Ltd., Clydebank	15 Mar. 49	14 June 50	21 Feb. 52
DIANA	D 126	Yarrow & Co. Ltd., Scotstoun	3 Apr. 47	8 May 52	29 Mar. 54
DUCHESS	D 154	John I. Thornycroft & Co. Ltd., Woolston	2 July 48	9 Apr. 51	23 Oct. 52

(Duchess is lent to the Royal Australian Navy, see page 13)

General
These destroyers can perform a number of roles including cruiser reconnaissance, and act as anti-submarine or anti-ship craft. All are fitted as leaders. They constitute an expansion and merging of the "Weapon" and the "Battle" design with increased armament, and were the largest destroyers ever built for the Royal Navy. Of all-welded hull construction. The basic plan was a wartime design, although they incorporated improvements subsequently devised. They represented a most ingenious and comprehensive light warship class. Habitability and layout of accommodation were of a high standard. They had improved anti-aircraft and anti-submarine systems. Cost £2,047,000 to £2,880,000 each.

Guided Missiles
Decoy was temporarily fitted with a "Seacat" installation aft and Diamond, Diana and Duchess were to have been fitted with "Seacat" surface-to-air guided missiles as close range anti-aircraft armament, but in 1963 it was decided that none of the "Daring" class would carry "Seacat", this weapon being reserved for new construction and "Battle" class radar picket conversions.

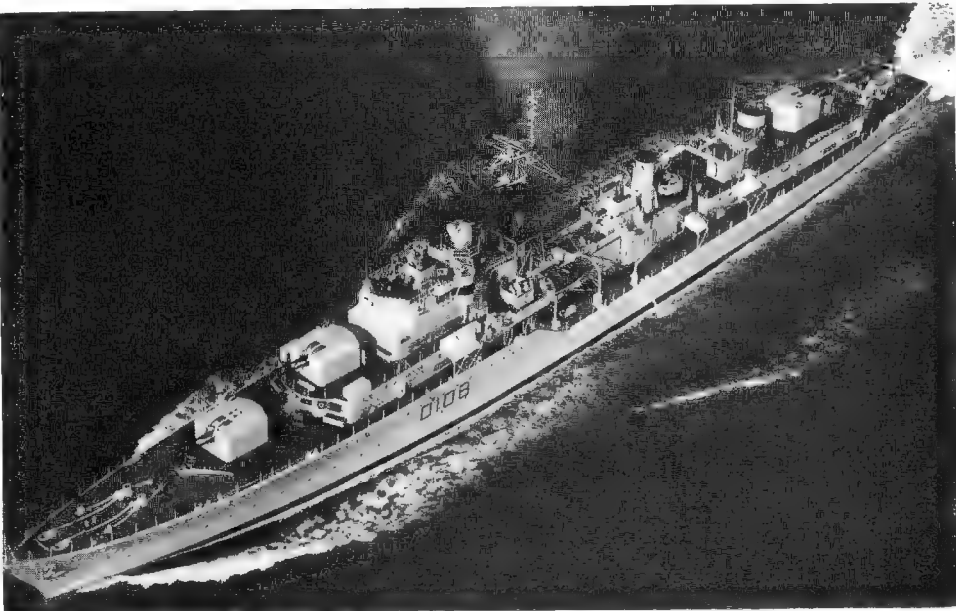
Gunnery
The 4.5 inch turrets were of a new type, fully automatic and radar controlled. The 40 mm. twin mountings abreast c.t. are also fully automatic and radar controlled. The 40 mm. twin mounting abaft second (visible) funnel is semi-automatic. In 1959 Decoy had her after twin Bofors removed and replaced by a deckhouse support for "Seacat" guided missiles. Duchess, as leader, has 4—3 pdr. saluting guns on the after 4.5 inch gun deck.

Torpedo Tubes
These ships originally mounted 10—21 inch torpedo tubes, but the after bank of five tubes was removed in 1958-59 and replaced by a deck house for extra mess accommodation, and the forward pentad mounting was suppressed in Dainty, Daring, Defender, and Delight in 1963-64.

Engineering
The main propelling machinery was of advanced design developed by PAMETRADA (Parsons and Marine Engineering Turbine Research and Development Association) and manufactured by Wallsend Slipway & Engineering Co. Ltd., in Daring, and by the builders in the others. Steam conditions were the highest used in ships of the Royal Navy, the boilers being designed for superheat control. Steam pressure 650 lbs. per sq. in. Temperature 850 deg. F.

Electrical
All-electric galleys, laundry and fluorescent lighting. In four ships, Decoy, Diamond, Diana and Duchess, the electrical plant differed from previous practice in ships of the Royal Navy in that it was an alternating current installation, operating at 440 volts, 3-phase, 60-cycles per second. Remaining four ships, Dainty, Daring, Defender and Delight had direct current at 220 volts.

Appearance
Duchess has a new deckhouse abaft the after funnel. In Decoy the deckhouse replacing the after tubes was built out with a platform reaching the ship's sides, supported by light stanchions, for "Seacat" guided missile support.



DAINTY (after long refit 1963-64)

1965, Official



DIANA

1964, Wright & Logan

Nomenclature

The following four ships were originally allocated other names:—Decoy (ex-Dragon), Defender (ex-Dogstar), Delight (ex-Disdain, ex-Ypres) and Diana (ex-Druid).

Class

Eight other units of this class ordered under the Second World War Construction Programme but cancelled after the cessation of hostilities were Danae, original Decoy, original Delight, Demon, Dervish, Desire, Desperate and Doughty.

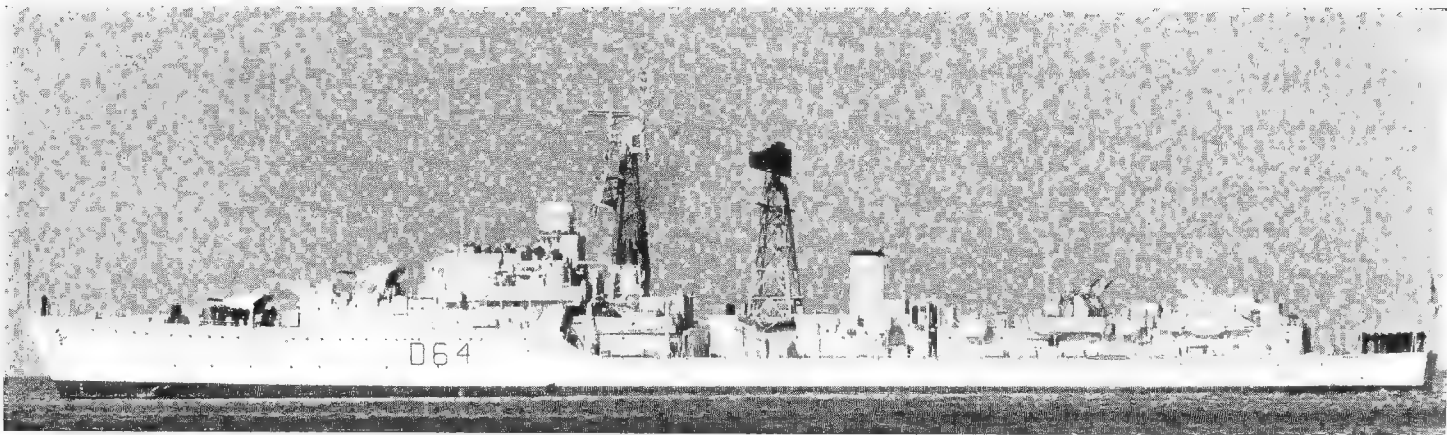
Modernisation

Dainty, Daring, Defender and Delight underwent long refit in 1963-64. Torpedo tubes removed.

Photographs

A photograph of Daring appears in the 1957-58 edition; of Duchess in the 1957-58 and 1958-59 editions, of Defender in the 1959-60 edition, of Diana (with ten tubes) in the 1960-61 edition, of Delight in the 1960-61 and 1961-62 editions, and of Decoy (temporarily fitted with "Seacat" guided weapon installation aft) in the 1962-63 and 1963-64 editions.

Destroyers-continued



SCORPION

1964, Giorgio Arra

Fleet Radar Pickets
Converted Destroyers
3 "Weapon" Class

Displacement:	2,280 tons standard (2,935 tons full load)
Dimensions:	341½ (pp.), 352 (w.l.), 365 (o.a.)×38×17 (max.) feet
Guns:	4—4 inch (in two twin mounts), 6—40 mm. AA.
A/S weapons:	Scorpion: 1 "Limbo" three-barrelled depth charge mortar, Broadsword, Crossbow: 2 "Squid" triple-barrelled depth charge mortars
Tubes:	Removed. (See Torpedo Mountings)
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 40,000=34 kts. (designed), 30-75 kts., sea speed
Boilers:	2 Foster-Wheeler (430 lb./sq. in.; 750 deg. F. controlled superheat)
Radius:	5,000 miles at 15 kts.
Complement:	234 (as Leaders, 256)

General
These destroyers were originally armed and equipped as fleet anti-submarine escorts. They embodied novel features in ship and engine design. All three ships were fitted as Leaders. Many more destroyers of this type were cancelled at the end of the Second World War, at least three of which were actually launched before construction was abandoned (see under Class notes below). The original design provided for six four-inch guns in three twin shields. The anti-submarine version, with only four four-inch guns in two twin mountings, was a revised design for the four ships actually completed.

Gunnery
Crossbow and Scorpion had their 4-inch guns disposed in "A" and "B" positions but in Broadsword they were originally mounted in "A" and "X" positions. The 40 mm. Bofors AA. pieces were of the newest type and radar controlled similar to those in the "Daring" and "Battle" classes. Scorpion had a new type "A" turret fixed experimentally, but she subsequently reverted to her usual "A" turret (1955). During reconstruction and conversion in 1958-59 the control equipment in all ships was brought up to date.

A/S Weapons
Originally two Squids (triple-barrelled depth charge mortars) were mounted in "B" position in Broadsword, and in "X" position in Crossbow and Scorpion. The latter subsequently had a single Limbo three-barrelled, depth bomb mortar mounted in "X" position.

Torpedo Mountings
These vessels originally carried 10—21 inch torpedo tubes, but both quintuple sets were removed during reconstruction in 1958-59 and replaced by deckhouses.

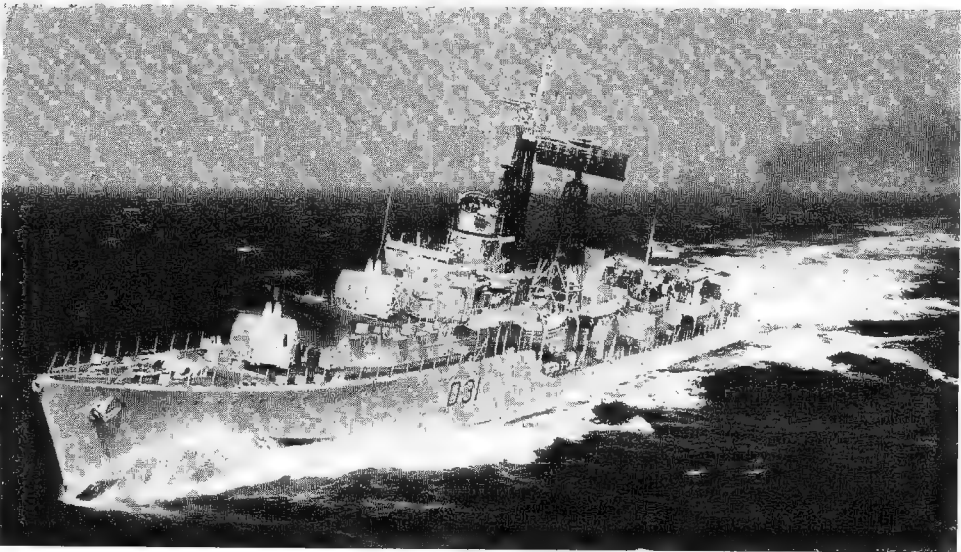
Engineering
There are two engine-rooms and two boiler-rooms, arranged alternately *en echelon*.

Conversion
The ships were modernised and converted to radar picket (aircraft direction) destroyers in 1958-59 when they had a second lattice mast installed amidships to carry a new type of air warning radar. Broadsword completed her conversion and commissioned on 30 Sep. 1958.

Photographs
A starboard quarter view of Scorpion before conversion appears in the 1957-58, 1958-59 and 1959-60 editions. A starboard broadside view of Crossbow (in the Addenda) after conversion appears in the 1959-60 edition. A starboard broadside view of Scorpion appears in the 1960-61 to 1963-64 editions, and a port bow view of Broadsword in the 1959-60 to 1963-64 editions.

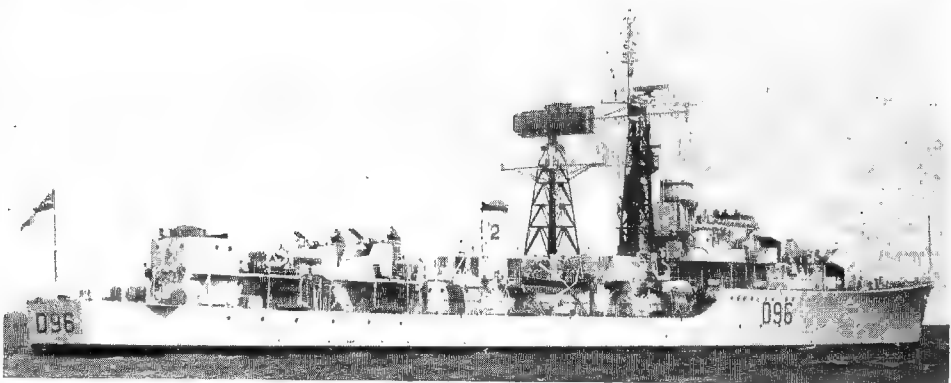
Nomenclature
Scorpion was originally allocated other names (ex-Tomahawk, ex-Centaur).

Name	Pennant No.	Builders	Laid down	Launched	Completed
BROADSWORD	D 31	Yarrow & Co. Ltd., Scotstoun	20 July 44	5 Feb. 46	4 Oct. 48
CROSSBOW	D 96	John I. Thornycroft & Co., Woolston	26 Aug. 44	20 Dec. 45	4 Mar. 48
SCORPION	D 64	J. Samuel White & Co. Ltd., Cowes	16 Dec. 44	15 Aug. 46	17 Dec. 47



BROADSWORD (applying wheel)

Added 1964, Official



CROSSBOW

1960, Official

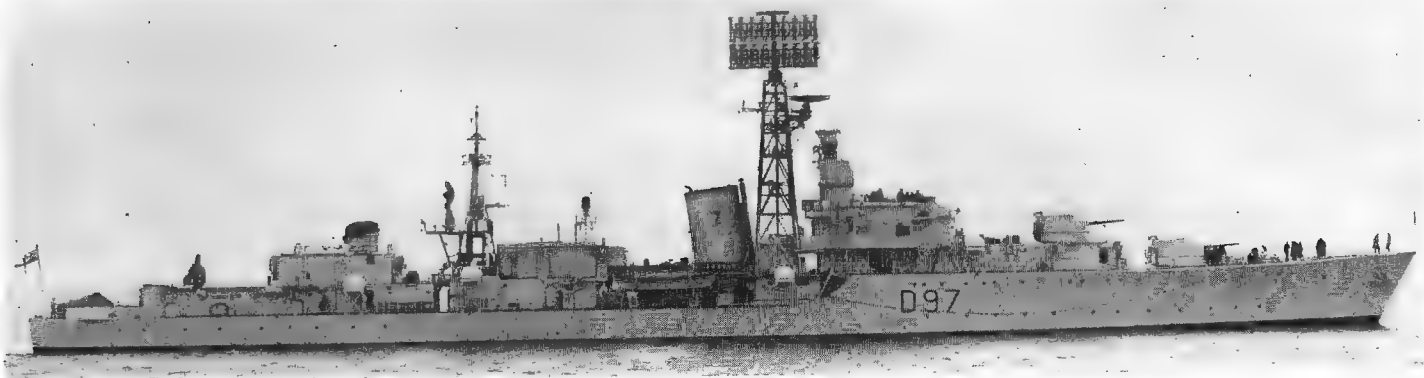
Appearance
These vessels were the first two-funnelled destroyers since the pre-war "I" and "Tribal" classes, though the fore-funnel is not markedly apparent, being enveloped by the lattice foremast except for the protruding cowl top, and the second funnel is not very conspicuous, being a squat and vertical stack considerably farther aft. The ships were originally of two types, easily distinguished—see A/S Weapon notes and Gunnery notes above. A noticeable feature of their new silhouette since the four ships were converted to radar pickets in 1958-59, is the second mast surmounted by a very prominent bed-spring air warning radar aerial.

Habitability
During reconstruction in 1958-59 the habitability was raised to the highest standard possible in ships of the size and class.

Class
Cancelled ships of this class included Carronade (Scotts), Culverin (Thornycroft), Cutlass and Dagger (Yarrow), Claymore and Dirk (Scotts), Halberd, Howitzer (Thornycroft), Longbow (Thornycroft), Musket (White), Poinard, Rifle and Spear (Denny), Sword (ex-Celt) (White), Grenade, Lance and Rapier. Of these, Carronade, Culverin and Cutlass, if not others, were actually launched before construction was abandoned.

Disposals
Sister ship Battleaxe, badly damaged in a collision at sea with the frigate Ursa on the night of 1 Aug. 1962, was, on being surveyed, found to be beyond economical repair, taking her age into consideration, and she was scrapped in 1964.
Broadsword was on the Scrap List in 1965, and Crossbow and Scorpion were in Reserve.

Destroyers-continued



CORUNNA

1964, Official



BARROSA

1963, Official

Fleet Radar Pickets

(Converted Destroyers)

4 Later "Battle" Class

Displacement:	2,480 tons standard (3,430 tons full load)
Dimensions:	355 (pp.), 364 (w.l.), 379 (o.a.) \times 40 $\frac{1}{2}$ \times 17 $\frac{1}{2}$ (max.) feet
Guns:	4-4.5 inch (two twin turrets forward), (see <i>Gunnery</i>)
Guided weapons:	1 quadruple launcher for "Seacat" anti-aircraft missiles (see <i>Guided Missiles</i>)
Tubes:	Removed (see <i>General</i>)
A/S weapons:	1 Squid triple barrelled depth charge mortar
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 50,000—35.75 kts. (designed), 30.5 kts sea speed
Boilers:	2 Admiralty 3-drum type (400 lb./sq. in.; 650 deg. F.)
Oil fuel:	680 tons
Radius:	1,300 miles at full power, 3,000 miles at 20 kts., 4,400 miles at 12 kts.
Complement:	232 to 268

General

Apart from a heavier main armament this class embodied several other improvements as compared with earlier destroyers. Before reconstruction as Fleet Radar Pickets, they also mounted ten 21-inch torpedo tubes in two quintuple banks on the centre line abaft the funnel. Originally *Agin-court* and *Corunna* were fitted as Leaders.

Gunnery

Before reconstruction these ships also mounted eight of the latest type 40 mm. Bofors anti-aircraft guns in four twin mountings.

Conversion

Now known as "Battle class AD Conversions". *Agin-court*, *Aisne*, *Barrosa* and *Corunna* have been converted into fleet radar pickets (aircraft direction destroyers), see *Radar* notes and *Guided Missile* notes. Little remains of the original ships save the hull, engines and boilers. Internally the ships were completely rebuilt to give a higher standard of living and fighting efficiency. The operations room is one of the most complicated and compact ever contrived in destroyers. Conversions for completion scheduled on 30 Nov. 1961 (*Corunna*), 9 Jan. 1962 (*Aisne*), Mar. 1962 (*Barrosa*) and 1 May 1962, (*Agin-court*). *Corunna* commissioned on 23 Feb. 1962, *Agin-court* on 1 May 1962.

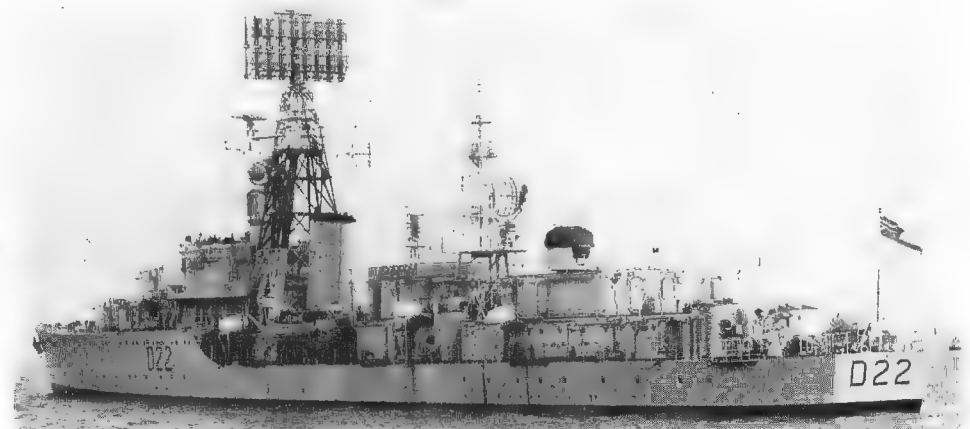
Guided Missiles

During the conversion of *Agin-court*, *Aisne*, *Barrosa* and *Corunna*, a guided weapons system was fitted to mount "Seacat" missiles, which, with the complex radar and gunnery systems, needs alternating current generators to power it (the ships normally use direct current for their services. The "Seacat" guided missile launcher is mounted on the after end of the superstructure.

Radar

Agin-court, *Aisne*, *Barrosa* and *Corunna* have been fitted with a beam to beam lattice foremast striding across the ship similar to an electric grid tower for the 293 type radar on its platform and five more aerials. The ships also have a mainmast amidships which carry 27 aerials. The most prominent feature is the 965 radar, described as a double bedstead, twice the size of the bedstead or advanced radar scanner topping a towering lattice mast fitted in the converted command carrier *Albion*, and twice as powerful as those fitted in the radar picket destroyers of the "Weapon" class.

Name	Pen. No.	Builders	Laid down	Launched	Completed
AGINCOURT	D 86	R. & W. Hawthorn, Leslie & Co. Ltd., Hebburn	12 Dec. 43	29 Jan. 45	25 June 47
AISNE	D 22	Vickers-Armstrongs Ltd., Newcastle-on-Tyne	26 Aug. 43	12 May 45	20 Mar. 47
BARROSA	D 68	John Brown & Co. Ltd., Clydebank	28 Dec. 43	17 Jan. 45	14 Feb. 47
CORUNNA	D 97	Swan, Hunter & Wigham Richardson, Wallsend	12 Apr. 44	29 May 45	6 June 47



AISNE

1964, Official



AGINCOURT

1962, Wright & Logan

Class

Sixteen more destroyers of the original Later "Battle" class were cancelled at the end of the Second World War, including the original *Jutland*, *Mons*, *Polters* (all Hawthorn-Leslie), *Namur*, *Navarino*, *San Domingo* (all Cammell Laird), *Talavera*, *Trincomalee* (both Clydebank), *Bellisle*, *Omdurman*, *Waterloo* (ex-*Vimeria*) (all Fairfield), *St. Lucia* (Stephen), *Oudenarde*, *River Plate* (both Swan Hunter), *Albuera* (Vickers-Armstrongs), and *Somme* (Cammell Laird). At least eight of these had been launched before construction was abandoned.

Appearance

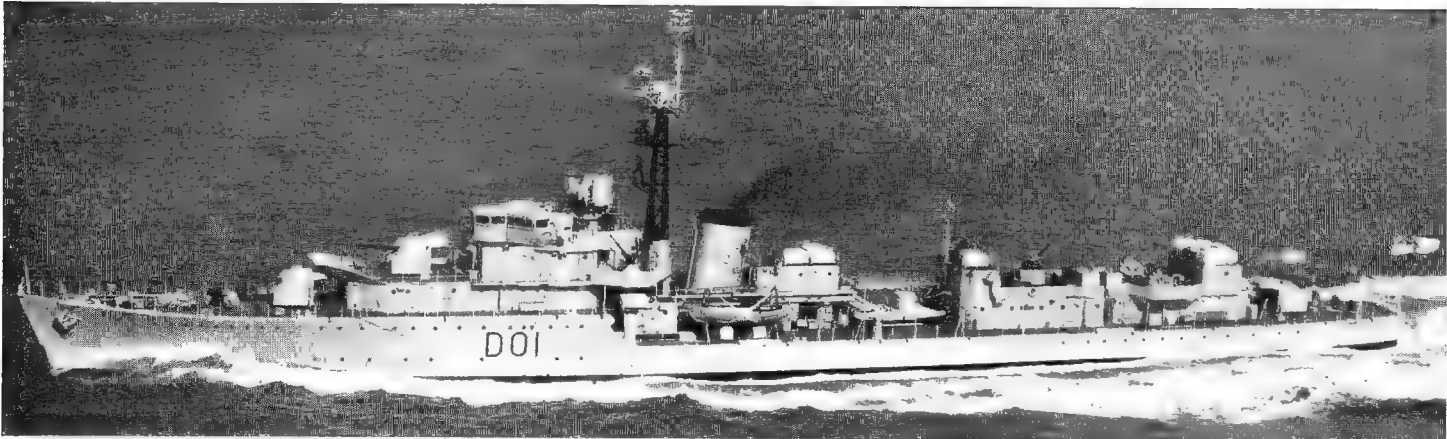
The converted ships are immediately identifiable by the huge "double bedstead" radar atop their foremasts.

Disposals

Of the Later "Battle" class, *Alamein* was surplus to fleet requirements in 1960 and was laid up until she was scrapped in 1965 with *Jutland*, and *Dunkirk* is being scrapped in 1965.

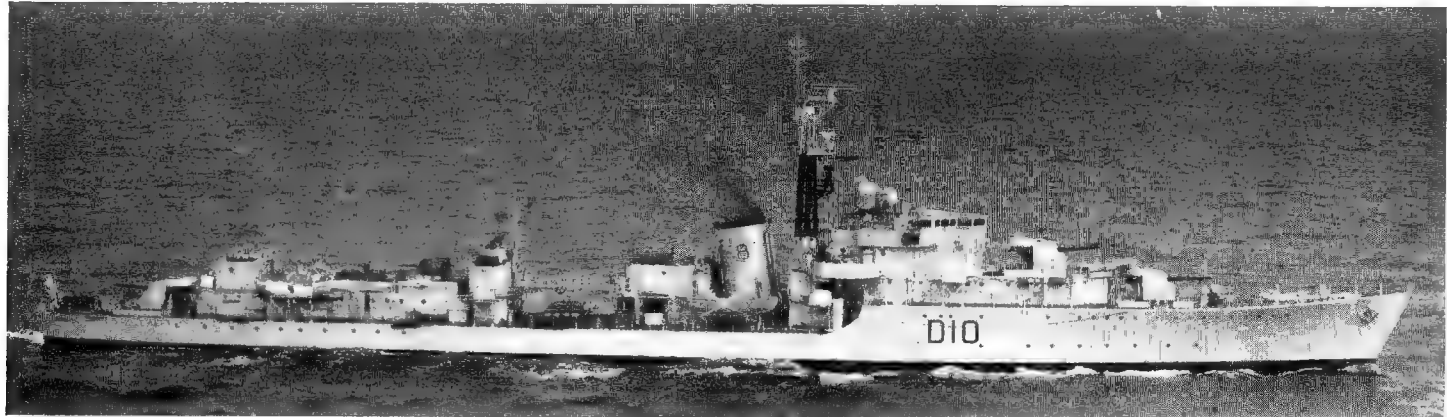
The unconverted *MATAPAN* (see full particulars in the 1961-62 edition) is laid up in reserve.

Destroyers-continued



CAPRICE

1963, Official



CASSANDRA

1962, Official

Anti-Submarine Escorts

7 "Ca" Class

Displacement:	2,020 tons standard (2,600 tons full load)
Dimensions:	339½ (pp.), 350 (w.l.), 362½ (o.a.) × 35½ × 17 (max.) feet
Guns:	3—4.5 inch, 4—40 mm. AA.
Tubes:	4—21 inch (quadrupled). Removed in Cambrian, Carysfort, Cavendish
A/S weapons:	2 Squid triple-barrelled depth charge mortars in "X" position
Machinery:	Parsons geared turbines. 2 shafts. S.H.P.: 40,000 36-75 kts. (designed), 31-25 kts. sea speed
Boilers:	2 Admiralty 3-drum type (300 lb./sq. in., 640 deg. F.)
Oil fuel	580 tons
Radius:	1,300 miles at full power, 2,800 miles at 20 kts.
Complement:	186 (Leaders, 222)

General
The "C" group of destroyers were of emergency war design. They were built as 4 flotillas, i.e. "Caesar," "Chequers," "Cossack" and "Crescent" classes.

Reconstruction
"Ca" class underwent a much more extensive refit than classes previously modernised, with superstructure extended aft and modified bridge.

The first four of the "Ca" class conversions have different bridges from the last four (Caesar, Cambrian, Caprice and Cassandra) which have "Leopard" type. Gunnery

Former armament was 4—4.5 inch and 6—40 mm. guns (also 8—21 inch torpedo tubes). The 4.5 inch gun in "X" position was removed.

Appearance
There are variations in appearance after reconstruction and modernisation for anti-submarine warfare.

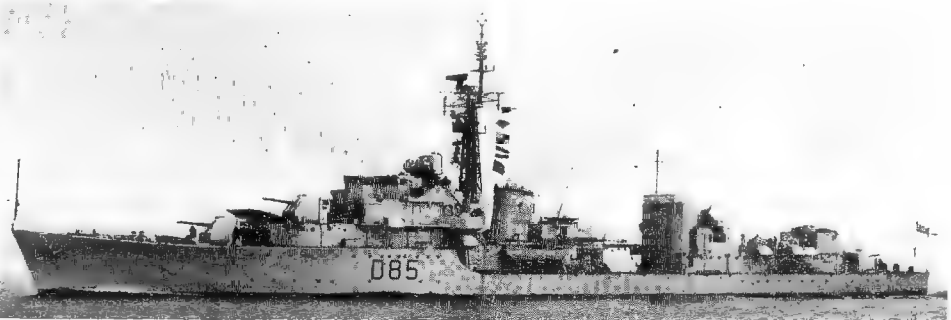
Photographs
Photographs appear of Cavalier in the 1958-59 edition, of Carysfort in the 1959-60 and 1960-61 editions, and of Caesar in the 1961-62 to 1964-65 editions.

Nomenclature
Six of this class were originally allocated other names:—Caesar (ex-Ranger), Cambrian (ex-Spitfire), Caprice (ex-Swallow), Carron (ex-Strenuous), Cassandra (ex-Tourmaline) and Cavendish (ex-Sybil).

Transfers
Of the "Cr" class, Crescent and Crusader were transferred to the Royal Canadian Navy in 1945, Cromwell, Crown, Croziers and Crystal were sold to Norway in 1946, and Creole and Crispin were sold to Pakistan in 1956. Of the "Ch" class, Chivalrous was transferred to Pakistan in 1953 and Charity in 1958.

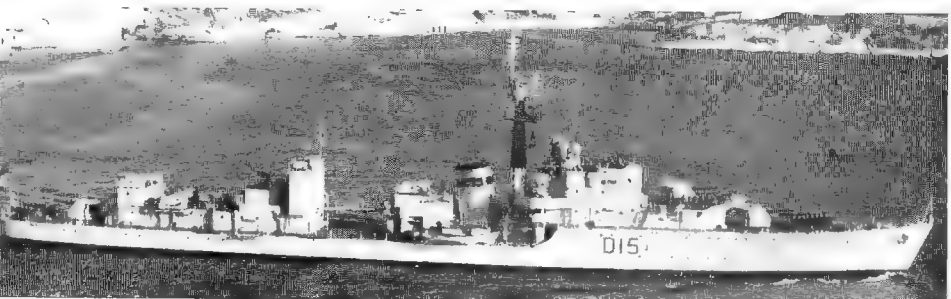
Disposals
Constance was scrapped in 1956, Comus in 1958, Contest and Cossack in 1960, Chieftain, Childers, Cockade, Comet and Consort in 1961, Concord and Cheviot in 1963, Chaplet in 1964, and Chequers in 1965. Chevron is being scrapped in 1965. Carron, latterly employed as Navigation Training Ship in the Portsmouth Squadron, is for disposals in the near future.

Name	Pen. No.	Builders	Laid down	Launched	Completed
CAESAR	D 07	John Brown & Co. Ltd., Clydebank	3 Apr. 43	14 Feb. 44	5 Oct. 44
CAMBRIAN	D 85	Scotts' Shipbuilding & Engineering, Greenock	14 Aug. 42	10 Dec. 43	17 July 44
CAPRICE	D 01	Yarrow & Co. Ltd., Scotstoun	28 Sep. 42	16 Sep. 43	5 Apr. 44
CARYSFORT	D 25	J. Samuel White & Co. Ltd., Cowes, I. of W.	12 May 43	25 July 44	20 Feb. 45
CASSANDRA	D 10	Yarrow & Co. Ltd., Scotstoun	30 Jan. 43	29 Nov. 43	28 July 44
CAVALIER	D 73	J. Samuel White & Co. Ltd., Cowes, I. of W.	28 Feb. 43	7 Apr. 44	22 Nov. 44
CAVENDISH	D 15	John Brown & Co. Ltd., Clydebank	19 May 43	12 Apr. 44	13 Dec. 44



CAMBRIAN

1965, Wright & Logan



CAVENDISH

1963, A. & J. Pavia

Disposals of other Destroyers

Of the Early "Battle" class, Hogue was discarded for scrap in 1960, Gravelinas, St. James and St. Kitts in 1961; Camperdown and Solebay in 1962, Vigo was scrapped in 1964, Armada, Barfleur, Finisterre and Lagos are being scrapped in 1965, and Sluys and Trafalgar are for disposal in the near future. Saintes became tender to Caledonia training establishment before disposal. Cadiz and Gabbard were sold to Pakistan in 1956 and renamed Khaibar and Badr, respectively.

Of the "O" class, Obedient was for disposal in 1961, Opportune was scrapped in 1955, Obdurate was expended in tests at the Naval Construction Research

Establishment at Rosyth. Oripi was transferred to Turkey and renamed Gayret. Offa, Onslaught and Onslow were transferred to Pakistan and renamed Tarig, Tughril and Tippu Sultan, respectively.

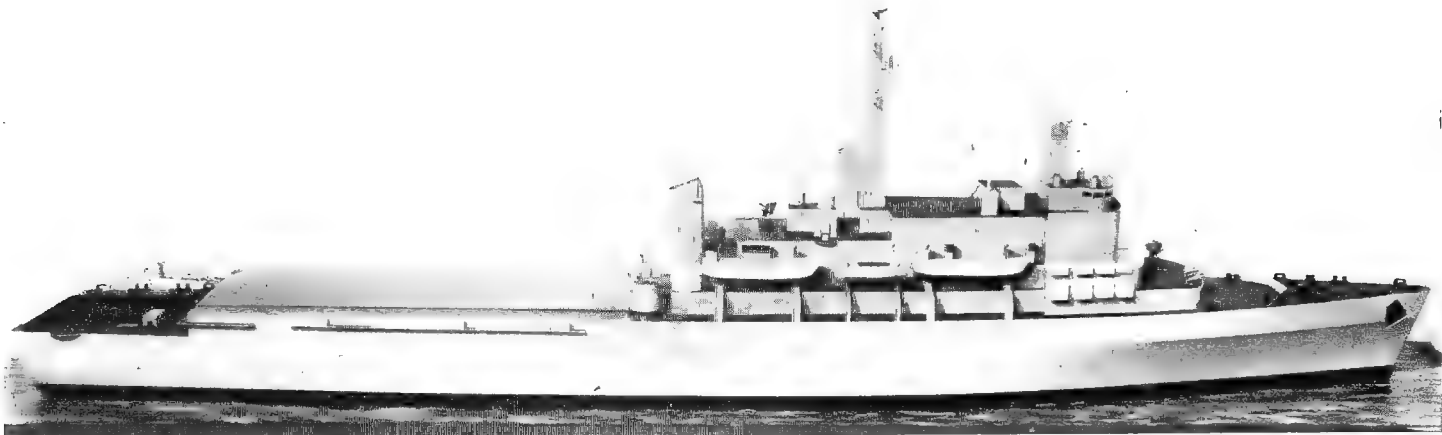
Of the "M" class, Musketeer was broken up in 1956 and Marne, Matchless, Meteor and Milne were handed over to Turkey on 29 June 1959.

Of the "N" class, Napier, Nepal Nizam and Noble were scrapped in 1956, and Norman in 1958.

Of the "Z" class, Zambesi and Zebra were scrapped in 1959 and Zephyr in June 1958.

The sole survivor of the "S" class, Savage, was disposed of in 1962.

ASSAULT SHIPS



FEARLESS (model)

1962, Official

2 Amphibious Dock Transport Type

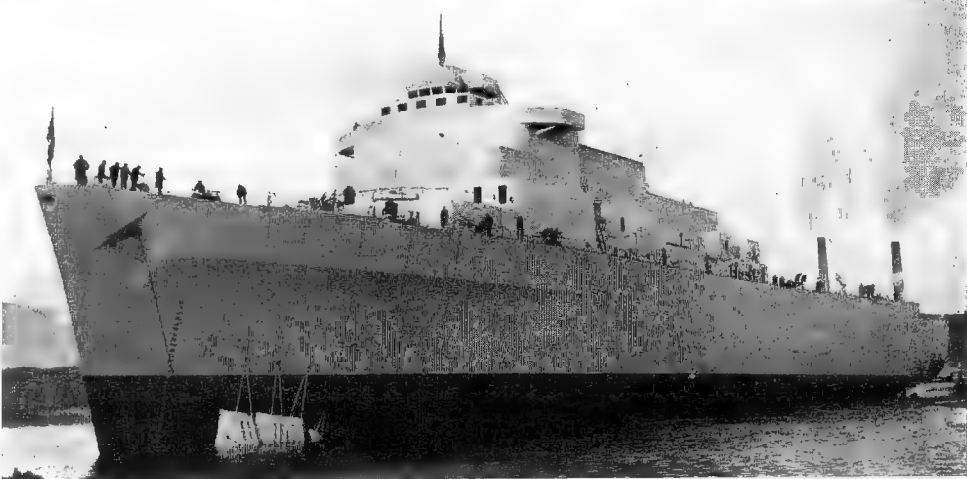
Name:	FEARLESS	INTREPID
Pennant No.:	L 3004	L 3005
Builders:	Harland & Wolff, Ltd., Belfast	John Brown & Co., (Clydebank) Ltd.
Ordered:	Dec. 1961	May 1962
Laid down:	25 July 1962	Late 1962
Launched:	19 Dec. 1963	25 June 1964
Completion:	Dec. 1965	May 1966
Displacement:	7,500 tons light, 10,000 tons standard, 12,500 tons full, 14,200 tons flooded (unofficial figures)	
Dimensions:	Length: 500 (pp.), 520 (o.a.) Beam: 80 feet. Draught: 20 feet (30 feet aft, 25 feet mean flooded)	
Aircraft:	Wessex helicopters	
Landing craft:	2 tank landing craft in dock; 2 assault landing craft at davits	
Guided weapons:	4 "Seacat" close-range anti-aircraft systems	
Guns:	2—40 mm. Bofors AA.	
Machinery:	2 sets steam turbines, 2 shafts. S.H.P.: 24,000—23 kts. (unofficial estimated figures)	
Vehicles:	15 lorries and trucks	
Troops:	900 with equipment	
Complement:	520 (36 officers and 490 ratings)	
General		

It was announced in the Navy Estimates for 1961-62 that it was planned to build an assault ship of a new design, which, with commando carriers, will replace the present ships of the Amphibious Warfare Squadron. The new ship will carry assault landing craft (LCM and LCA) which can be floated through the open stern by flooding compartments of the ship and lowering her in the water. She will be able to deploy tanks, vehicles and men. She will have seakeeping qualities much superior to those of the present tank landing ships, and her speed and range will be greater. She will also be able to serve as a Command Ship at sea for transit operations and as a Headquarters Ship in the assault area. Another valuable feature will be a helicopter platform which is also the deckhead of the covered well or dock from which the landing craft are floated out. The vessel has a new type of hull combining features of both an escort aircraft carrier and a troop transport with the basic lines of the dock landing ships of the Second World War. She is similar to the new dock amphibious transports in the United States Navy. She will be completed in four years, and will cost £8,000,000.

Illustration
An official drawing—a port quarter oblique elevated view—of the projected "open stern" assault ship, the prototype for the enlarged commando units of the Royal Navy and Royal Marines, appears in the 1961-62 edition.

Engineering
From the photograph of the model above it will be seen that the funnels are staggered across the beam of the ship, indicating that the engines and boilers are arranged *en echelon*, two machinery spaces having one set of turbines and one set of boilers installed in each space, the port shaft being longer than the starboard. It was officially stated in 1964 that the main machinery is arranged in two self contained units, each driving one shaft, manufactured by the English Electric Co., Rugby, the main gearing by David Brown & Co.

Official Statement (June 1964)
Intrepid is fitted out as a Naval Assault Group/Brigade Headquarters Ship and is provided with an Assault Operations Room from which Naval and Military personnel, working in close co-operation, can mount and control the progress of an assault operation. She will be equipped with the latest radio aids so that the Admiralty or other appropriate authorities can send teleprinter messages to the ship wherever she may be operating. Her H.F. transmitters will enable her to communicate with Commonwealth or Allied receiving stations and she also be able to maintain contact with other ships, aircraft, military authorities and associated landing craft which may be operating with her. She will operate with a Royal Marine Commando or infantry battalion.



FEARLESS (launch)

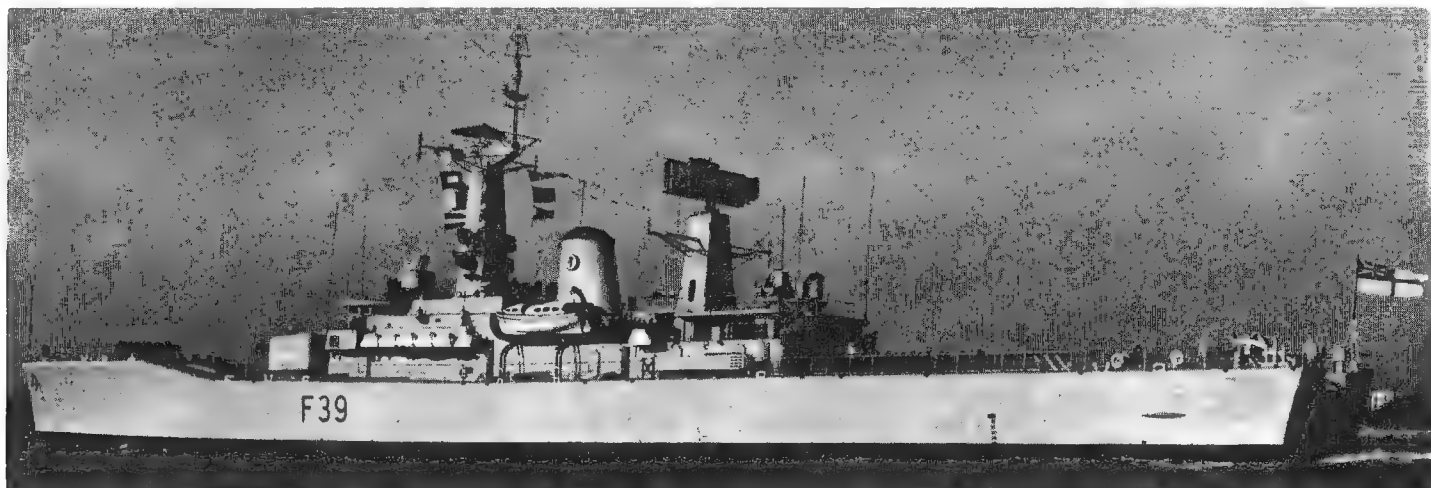
19 Dec. 1963, Official



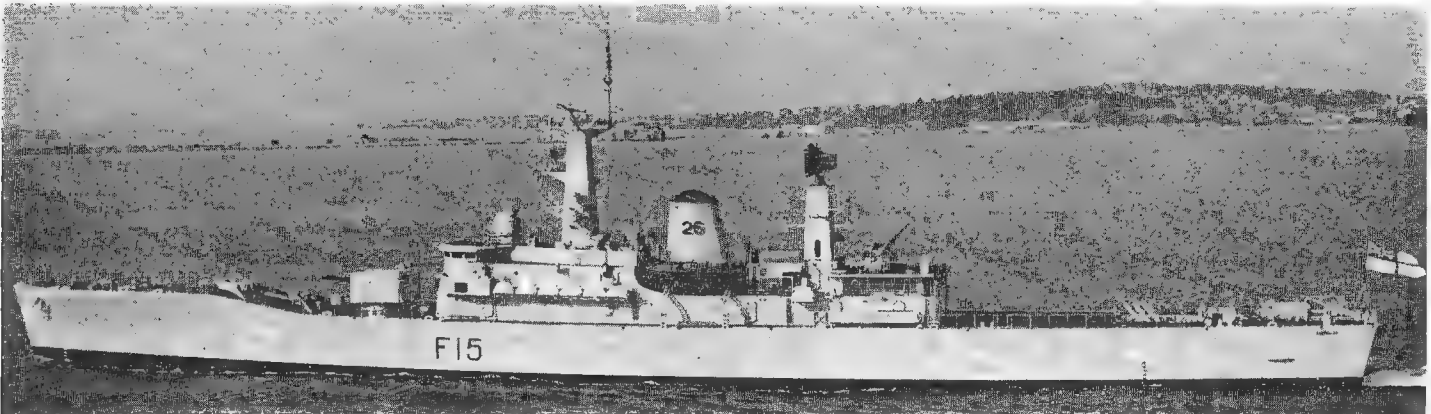
INTREPID (model)

1964, Official

GENERAL PURPOSE FRIGATES (A/S)



NAIAD (with "Seacat" ship-to-air guided missile launcher) 1965, Wright & Logan



EURYALUS (with 40 mm. Bofors instead of "Seacat") 1965, Official

"Leander" Class. Improved Type 12
16+3 New Construction
1st Rate (Anti-Submarine Versatile Type)

Displacement:	2,300 to 2,450 tons standard (2,800 tons full load)
Dimensions:	360 (w.l.), 372 (o.a.)×41×18 (max.) feet
Guns:	2—4.5 inch (twin turret), 2—40 mm. Bofors AA. (single)
Guided weapons:	1 quadruple launcher for "Seacat" anti-aircraft missiles in <i>Minerva</i> , <i>Naïad</i> and later ships (see <i>Guided Weapons</i> below)
A/S weapons:	1 "Limbo" three-barrelled depth charge mortar
Aircraft:	1 Wasp lightweight helicopter armed with homing torpedoes
Machinery:	2 sets double reduction geared turbines. 2 shafts. S.H.P.: 30,000=30 kts.
Boilers:	2
Complement:	251 to 262 (17 officers, 234 to 245 ratings)

General
The Admiralty announced on 7 Mar. 1960 that it had been decided to exploit the good qualities of the very successful "Whitby" class anti-submarine frigates in an improved and more versatile Type 12 known as the "Leander" class. The main new features are a long-range air warning radar, the "Seacat" anti-aircraft guided missile, improved anti-submarine detection equipment and a lightweight helicopter armed with homing torpedoes. The Admiralty also introduced air conditioning and better living conditions in this mainly anti-submarine but flexible and all-purpose type. Seven ships were initially provided for, three more were ordered under the 1961-62 Navy Estimates, three under the 1962-63 programme, three under the 1963-64 programme, and three under the 1964-65 programme.

Guided Weapons
Naïad was the first of the class to be completed with "Seacat" fitted. The 40 mm. guns mounted in the earlier ships will eventually be replaced by "Seacat" ship-to-air launchers and directors.

Design
The "Leander" class have the same hull and substantially the same steam turbine machinery as the "Whitby" class, but are of a revised and advanced design and will fulfil a composite anti-submarine, anti-aircraft and air direction role. The ships are equipped with VDS (Variable Depth Sonar), formerly known as dipping asdic.

Nomenclature
Ajax, *Dido* and *Leander* were originally to have been the last three units of the "Rothesay" class. *Fowey*, *Hastings* and *Weymouth*, respectively, and *Penelope* was originally to have been the fifth ship of the "Salisbury" class, *Coventry*.

Photographs
A photograph of *Leander* appears in the 1963-64 and 1964-65 editions, and of *Ajax* and *Penelope* in the 1964-65 edition.

Name	Pennant No.	Builders	Laid down	Launched	Completed
AJAX	F 114	Cammell Laird & Co. Ltd., Birkenhead	19 Oct. 59	16 Aug. 62	10 Dec. 63
DIDO	F 104	Yarrow & Co. Ltd., Scotstoun, Glasgow	2 Dec. 59	22 Dec. 61	18 Sep. 63
LEANDER	F 109	Harland & Wolff Ltd., Belfast	10 Apr. 59	28 June 61	27 Mar. 63
PENELOPE	F 127	Vickers-Armstrongs Ltd., Tyne	14 Mar. 61	17 Aug. 62	31 Oct. 63
AURORA	F 10	John Brown & Co. (Clydebank) Ltd.	1 June 61	28 Nov. 62	9 Apr. 64
EURYALUS	F 15	Scotts' Shipbuilding & Eng., Greenock	2 Nov. 61	6 June 63	16 Sep. 64
GALATEA	F 18	Swan, Hunter & Wigham Richardson, Tyne	29 Dec. 61	23 May 63	25 Apr. 64
ARETHUSA	F 38	J. Samuel White & Co. Ltd., Cowes	17 Sep. 62	5 Nov. 63	29 Sep. 65
NAIAD	F 39	Yarrow & Co. Ltd., Scotstoun, Glasgow	30 Oct. 62	4 Nov. 63	15 Mar. 65
CLEOPATRA	F 28	H.M. Dockyard, Devonport	19 June 63	25 Mar. 64	
SIRIUS	F 40	H.M. Dockyard, Portsmouth	9 Aug. 63	22 Sep. 64	
MINERVA	F 45	Vickers-Armstrongs Ltd., Tyne	26 July 63	19 Dec. 64	
PHOEBE	F 42	Alex. Stephen & Sons Ltd., Glasgow	3 June 63	8 July 64	
DANAE	F 47	H.M. Dockyard, Devonport	16 Dec. 64		
JUNO	F 52	John I. Thornycroft Ltd., Woolston	16 July 64		
ARGONAUT	F 56	Hawthorn Leslie Ltd., Hebburn-on-Tyne	27 Nov. 64		
ANDROMEDA		H.M. Dockyard, Portsmouth			
JUPITER		Yarrow & Co. Ltd., Scotstoun, Glasgow			
HERMIONE		Alex. Stephen & Sons Ltd., Glasgow			



GALATEA 1965, J. W. Kennedy



DIDO 1964, Official

GENERAL PURPOSE FRIGATES (Gas Turbine)



MOHAWK
7 "Tribal" Class. Type 81
New Construction
1st Rate (Destroyer Type)

Displacement: 2,300 tons standard (2,700 tons full load)
Dimensions: 350 (w.l.), 360 (o.a.)×42½×17½ (max.) feet
Guns: 2—4.5 inch d.p. (single); 2—40 mm. Bofors AA. (single)
Guided weapons: 1 quadruple launcher for "Sea-cat" ship to air missiles in Zulu
A/S weapons: 1 "Limbo" three-barrelled depth charge mortar
Aircraft: 1 Westland Wasp helicopter
Machinery: 1 Metrovick geared steam turbine. S.H.P.: 12,500, boosted by 1 Metrovick gas turbine. S.H.P.: 20,000=28 kts.
Boilers: 2 Babcock & Wilcox (plus 1 auxiliary boiler)
Complement: 253 (13 officers, 240 ratings)

General
General purpose frigates designed to fulfil economically all the functions of frigates rather than have an outstanding performance in any one specialised role, but capable of meeting the main escort functions of anti-submarine protection, anti-aircraft defence, and aircraft direction. Ashanti, Eskimo and Gurkha were ordered under the 1955-56 Navy Estimates, Nubian and Tartar under the 1956-57 programme, and Mohawk and Zulu under the 1957-58 programme. These versatile ships have two funnels like destroyers, and were designed for general duties formerly undertaken by destroyers. They are fully air conditioned in all accommodation space and most working spaces. Ashanti cost £5,220,000.

Turbine Design
These ships have COSAG (combined steam and gas turbine) machinery plants. The engines are right aft. The principle employed is that of highly efficient steam turbines and gas turbines geared to the same propeller shaft. The gas turbines provide a high concentration of power in a very compact form and are used to supplement the steam turbines for sustained bursts of high speed work. They are also able to develop their full power from cold within a few minutes, providing unprecedented mobility. The machinery installations were conceived and designed by the Yarrow-Admiralty Research Department of Yarrow & Co. Ltd., Scotstoun, Glasgow, in conjunction with the Admiralty. The Metropolitan-Vickers Electrical Co. Ltd., Manchester, designed and manufactured the steam turbines, gas turbines, gearing and control gear. This lightweight and compact machinery enabled more fighting equipment to be carried than would have been possible with orthodox machinery.

Anti-Submarine
The "Ashanti" class were the first frigates designed to carry a helicopter for anti-submarine reconnaissance.

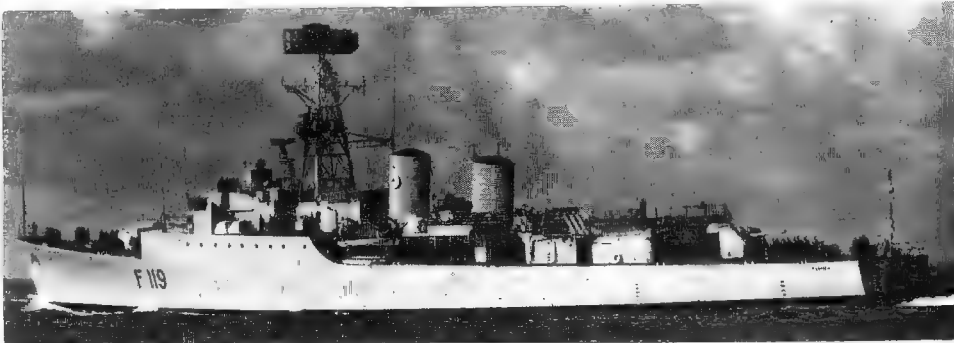
Operational
These ships have a totally enclosed bridge and an air-conditioned operations room. They are equipped with warning radar of the most modern design. They are fitted with stabilisers and have two rudders.

Photographs
Three photographs of the prototype Ashanti, a large port bow oblique aerial view, a port quarter oblique aerial view, and a dead broadside port surface view appear in the 1962-63 edition, and a port quarter surface view with helicopter on board in the 1963-64 and 1964-65 editions. A large starboard broadside view of Gurkha and a port bow view of Nubian appear in the 1963-64 edition.

Engineering
A steam turbine provides the power for normal cruising and manoeuvring. A gas turbine driving on to the same propeller shaft provides the additional power for high speed steaming. This gas turbine also enables the ship lying in harbour without steam up to get under way instantly in emergency. The machinery is remotely controlled at all powers.

Habitability
A high standard of living accommodation is incorporated, and, in particular, all manned compartments are air-conditioned. Bunk sleeping is provided throughout, and messing is on the cafeteria system.

Name	Pennant No.	Builders	Laid down	Launched	Completed
ASHANTI	F 117	Yarrow & Co. Ltd., Scotstoun	15 Jan. 1958	9 Mar. 1959	23 Nov. 1961
ESKIMO	F 119	J. Samuel White & Co. Ltd., Cowes	22 Oct. 1958	20 Mar. 1960	21 Feb. 1963
GURKHA	F 122	J. I. Thornycroft & Co. Ltd., Woolston	3 Nov. 1958	11 July 1960	13 Feb. 1963
MOHAWK	F 125	Vickers-Armstrongs Ltd., Barrow	23 Dec. 1960	5 Apr. 1962	29 Nov. 1963
NUBIAN	F 131	H.M. Dockyard, Portsmouth	7 Sep. 1959	6 Sep. 1960	9 Oct. 1962
TARTAR	F 133	H.M. Dockyard, Devonport	22 Oct. 1959	19 Sep. 1960	26 Feb. 1962
ZULU	F 124	Alex Stephen & Sons Ltd., Govan	13 Dec. 1960	3 July 1962	17 Apr. 1964



ESKIMO 1965, Wright & Logan



ZULU 1964, J. W. Kennedy



TARTAR 1963, Official

Electrical
The ship's generator capacity is such that it will meet high demands. Fluorescent lighting is used for all living accommodation, each bunk is fitted with its own light, provision is made for such labour saving devices as vacuum cleaners and floor polishers, while supply sockets are available for officers and ratings using electric razors.

Construction
Ships of the class are of all-welded prefabricated construction and the structural arrangements were designed to provide a robust hull with special emphasis on the prevention of corrosion. Denny Brown stabilisers are fitted to reduce rolling in heavy seas, while good sea-keeping qualities enable them to maintain a high speed in rough weather.

ANTI-SUBMARINE FRIGATES



LONDONDERRY

1964, Skyfotos

9 "Rothesay" Class. Modified Type 12
1st Rate (Anti-Submarine Quality Type)

General
Basically similar to the "Whitby" class but with modifications in layout as a result of experience gained with the earlier ships of the Type 12, see full particulars below. There are several differences, including the single Bofors, later to be replaced by Seacat, and the build up of the after superstructure around the mainmast.

6 "Whitby" Class. Type 12.

1st Rate (Anti-Submarine Quality Type)

Displacement: 2,150 tons standard (2,560 tons full load)
Dimensions: 360 (w.l.), 369½ (o.a.)×41×17½ (max.) feet
Guns: 2—4.5 inch (twin turret), 2—40 mm, Bofors AA. (1 twin), see Guided Missile Armament
Tubes: See Torpedo Mountings
A/S weapons: 2 "Limbo" three-barrelled depth charge mortars
Machinery: 2 sets double reduction geared steam turbines, 2 shafts, S.H.P.: 30,430=31 kts. (max.), 29 kts. sea speed
Boilers: 2 Babcock & Wilcox
Oil fuel: 370 tons
Complement: "Rothesay" class: 200 (9 officers, 191 ratings)
"Whitby" class: Leaders: 189 (9 officers, 180 ratings), others 152 (7 officers, 145 ratings)

General
Primarily designed for the location and destruction of the most modern submarines, these frigates were fitted with the latest underwater detection equipment and anti-submarine weapons of post-war development. Good sea-keeping qualities enable the vessels to maintain their high speed in rough seas. They are all welded and the structural arrangements were specially designed to achieve the lightest possible structure. Opportunity was taken in their building to gain experience in welding procedures necessary for rapid building of such vessels in emergency.

Engineering
Propelling machinery fitted included geared turbines of novel design and high power. Double reduction gearing allows low propeller revolutions at high power and the propeller efficiency is correspondingly high. This, coupled with improvements in hull design, enables these frigates to achieve over 30 knots on only 75 per cent of the power required by older destroyers of comparable displacement. Arrangement of the engine room machinery is outstandingly good.

Anti-submarine Warfare
Have modern equipment for hunting and killing submarines and facilities for directing anti-submarine aircraft.

Torpedo Mountings
Provision was made in the design for mounting 12 A/S torpedo tubes (8 single, 2 twin), but later ships never carried them, and they were removed from earlier ships. Scarborough was the first to be fitted with tubes (four fixed on each side, and two swivel mountings).

Operational
When completed they were considered to be the most useful class of ships of their size ever put into service. With high fo'c'sle and clean lines they ride well in a sea-way and are exceptionally dry. The enclosed bridge is spacious, with splendid vision, heated windows in the fore of the bridge being an asset in Arctic waters. Internal communications satisfied every demand placed upon them. The operations room was the finest ever put into a ship of the size.

Appearance
Later ships were completed with a thicker, raked back funnel with a dome cap (actually there are two stacks inside the funnel) and early ships of the class, which had a vertical funnel, were taken in hand for similar alterations as opportunities offered. Eastbourne, Scarborough, Tenby and Torquay, training ships, are now slightly different in appearance.

Name	Pennant No.	Builders	Launched	Completed
BERWICK	F 115	Harland & Wolff Ltd., Belfast	15 Dec. 1958	1 June 1961
BRIGHTON	F 106	Yarrow & Co. Ltd., Scotstoun	30 Oct. 1959	28 Sep. 1961
FALMOUTH	F 113	Swan, Hunter and Wigham Richardson Ltd., Tyne	15 Dec. 1959	25 July 1961
LONDONDERRY	F 108	J. Samuel White & Co. Ltd., Cowes, Isle of Wight	20 May 1958	22 July 1960
LOWESTOFT	F 103	Alex Stephen & Sons Ltd., Govan, Glasgow	23 June 1960	18 Oct. 1961
PLYMOUTH	F 126	H.M. Dockyard, Devonport	20 July 1959	11 May 1961
ROTHESAY	F 107	Yarrow & Co. Ltd., Scotstoun	9 Dec. 1957	23 Apr. 1960
RHYL	F 129	H.M. Dockyard, Portsmouth	23 Apr. 1959	31 Oct. 1960
YARMOUTH	F 101	John Brown & Co. Ltd., Clydebank	23 Mar. 1959	26 Mar. 1960



YARMOUTH

1965, Wright & Logan

Name	Pennant No.	Builders	Launched	Completed
BLACKPOOL	F 77	Harland & Wolff Ltd., Belfast	14 Feb. 1957	12 Aug. 1958
EASTBOURNE	F 73	Vickers-Armstrongs Ltd., Tyne (Completed at Barrow)	29 Dec. 1955	9 Jan. 1958
SCARBOROUGH	F 63	Vickers-Armstrongs Ltd., Tyne	4 Apr. 1955	10 May 1957
TENBY	F 65	Cammell Laird & Co. Ltd., Birkenhead	4 Oct. 1955	18 Dec. 1957
TORQUAY	F 43	Harland & Wolff Ltd., Belfast	1 July 1954	10 May 1956
WHITBY	F 36	Cammell Laird & Co. Ltd., Birkenhead	2 July 1954	19 July 1956



FALMOUTH

1963, Wright & Logan

Guided Missile Armament
The "Rothesay" class are to be fitted with "Seacat" surface-to-air guided missiles as secondary armament in place of Bofors close range anti-aircraft guns. A single 40 mm. gun mounted as a temporary measure, will eventually be replaced by a "Seacat" guided missile launcher and director.

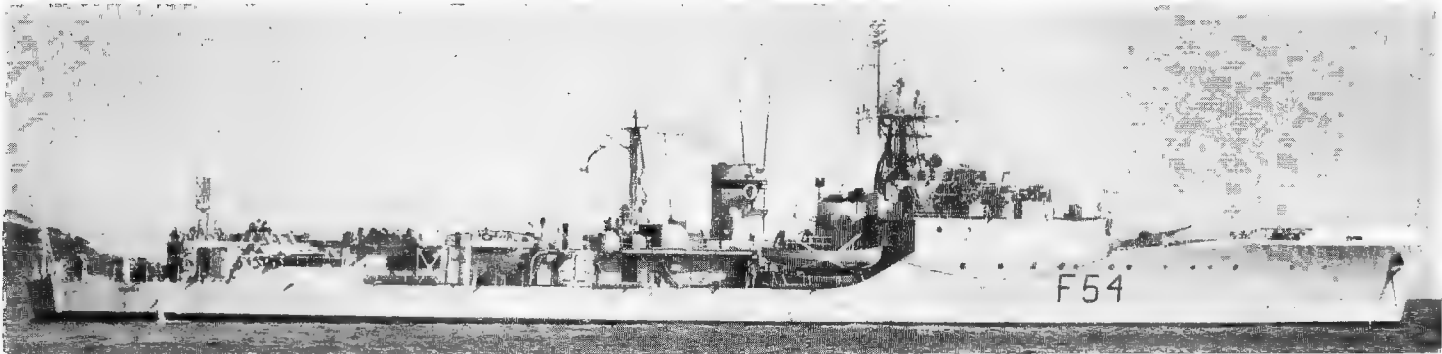
Electrical
The electrical system is alternating current, 440 volts, three phase, 60 cycles per second.

Nomenclature
All the ships of the "Whitby" and "Rothesay" classes were named after seaside resorts and coastal towns: The ships begun as the Fowey, Hastings and Weymouth were re-designed as units of the "Leander" class and re-named Ajax, Dido and Leander, respectively, see previous page.

Improvement
As far as possible, the improvements introduced in the "Leander" class will be extended, during refits, to the "Whitby" class. Although basically similar to the six earlier ships of the "Whitby" class, the opportunity was taken to incorporate in the "Rothesay" class modifications in the layout which extensive experience with the earlier ships had shown to be advantageous.

Photographs
Photographs appear of Whitby in the 1957-58 edition, of Torquay in the 1957-58 to 1962-63 editions, of Eastbourne in the 1958-59 to 1960-61 editions, of Tenby in the 1958-59 edition, of Scarborough in the 1957-58 and 1959-60 editions, of Rothesay in the 1960-61 edition (Addenda), of Blackpool in the 1960-61 to 1962-63 editions, of Plymouth in the 1962-63 and 1963-64 editions, and of Rhyl in the 1963-64 and 1964-65 editions.

Anti-Submarine Frigates—continued



HARDY

1965, courtesy Godfrey H. Walker, Esq.

12 "Blackwood" Class. Type 14.
2nd Rate (Anti-Submarine Utility Type)

Displacement: 1,180 tons standard (1,456 tons full load)
Dimensions: 300 (pp.), 310 (o.a.)×33×15½ (max.) feet
Guns: 2 or 3—40 mm. Bofors AA.
Tubes: Removed. See Torpedo Armament
A/S weapons: 2 Limbo three-barrelled depth charge mortars
Machinery: 1 set geared steam turbines, 1 shaft. S.H.P.: 15,000=27·8 kts. (max.), 24·5 kts. sea speed
Boilers: 2 Babcock & Wilcox
Complement: 111 (7 officers, 104 ratings)

General

Very lightly armed, as far as guns are concerned. Designed for a mainly anti-submarine role. Of comparatively simple construction. All built in pre-fabricated sections. In 1958-59 their hulls were strengthened to stand up to the severe and prolonged sea and weather conditions on fishery protection duties in Icelandic waters.

Anti-Submarine Warfare

The two Limbos can each fire with great accuracy a pattern of large depth bombs which can be set to explode at a predetermined depth. They can be trained over a wider arc than previous types of anti-submarine mortars, and have a much greater and more accurate range.

Torpedo Armament

4—21 inch tubes (2 twin) were mounted in Blackwood, Exmouth, Malcolm and Palliser but have now been removed from all ships.

Engineering

All engined by their builders, except Pellow and Russell, by Wallsend Slipway & Eng. Co. Ltd., and Grafton and Malcolm by Parsons Marine Steam Turbine Co. Ltd., Wallsend-on-Tyne. The turbines were of advanced design. The propelling machinery of Hardy and Keppel includes turbines of English Electric Co. design.

Fishery Protection Squadron

Duncan (on completion as Squadron Leader in 1958), Malcolm (in 1959), Palliser (Apr. 1958) and Russell (Jan. 1958) formed the 1st Division of the Fishery Protection Squadron.

Photographs

Photographs appear of Keppel in the 1956-57 and 1957-58 editions, of Blackwood in the 1958-59 edition, of Palliser in the 1959-60 edition, of Pellow in the 1958-59 to 1963-64 editions, of Duncan in the 1961-62 to 1963-64 editions, and of Grafton in the 1964-65 edition.

Nomenclature

Named after famous Captains of British naval history.

Disposals of "Hunt" Type 1

Brocklesby, last survivor of the famous "Hunt" group in the Royal Navy (designed as "fast escort vessels", but rated as destroyers until 1947, when they were reclassified as anti-aircraft frigates) was paid off on 21 June 1963 (she had latterly been Sonar Trials and Training Ship) and listed for scrap in 1965.

Mendip, transferred to China in May, 1948, was returned to the Royal Navy a year later, but transferred to Egypt in 1949 and captured by Israel in 1956. Cottesmore was also transferred to Egypt in 1951. Meynell and Quantock were purchased by Ecuador in 1955.

Liddesdale was discarded. Cotswold and Hambledon were used as artificial harbour at Harwich. Eglinton was scrapped in 1956. Blenconthra, Cleveland, Fernie, Halderness, Pytchley and Southdown in 1957. Atherstone, Catistock, Garth and Whaddon in 1958.

Berkeley, Exmoor, Quorn and Tynedale were Second World War losses.

For disposals of "Hunt" types 11, 111, and IV see later page and 1959-60 edition.

Disposals of "Bay" Class

Whitesand Bay was scrapped in 1956. Enard Bay and Wildemouth Bay in 1957. Carnarvon Bay, Cawsand Bay, Largo Bay, Padstow Bay, St. Austell Bay, Start Bay, Tremadoc Bay and Verran Bay in 1958. Wigtown Bay in 1959. Cardigan Bay in 1961, and St. Brides Bay in 1962.

Bigbury Bay and Burghead Bay were transferred to Portugal at Plymouth on 11 May 1959 and renamed Pacheco Pereira and Alvares Cabral, respectively; and Morecambe Bay and Mounts Bay were transferred to Portugal in 1961 after refit at John I. Thornycroft & Co. Ltd., Southampton, and renamed Vasco da Gama and D. Francisco de Almeida. Porlock Bay was transferred to Finland in Apr. 1962.

Name	Pennant No.	Builders	Launched	Completed
BLACKWOOD	F 78	John I. Thornycroft & Co. Ltd., Southampton	4 Oct. 1955	22 Aug. 1957
DUNCAN	F 80	John I. Thornycroft & Co. Ltd., Southampton	30 May 1957	21 Oct. 1958
DUNDAS	F 48	J. Samuel White & Co. Ltd., Cowes, Isle of Wight	25 Sep. 1953	16 Mar. 1956
EXMOUTH	F 84	J. Samuel White & Co. Ltd., Cowes, Isle of Wight	16 Nov. 1953	20 Dec. 1957
GRAFTON	F 51	J. Samuel White & Co. Ltd., Cowes, Isle of Wight	13 Sep. 1954	8 Jan. 1957
HARDY	F 54	Yarrow & Co. Ltd., Scotstoun, Glasgow	25 Nov. 1953	15 Dec. 1955
KEPPEL	F 85	Yarrow & Co. Ltd., Scotstoun, Glasgow	31 Aug. 1954	6 July 1956
MALCOLM	F 88	Yarrow & Co. Ltd., Scotstoun, Glasgow	18 Oct. 1955	12 Dec. 1957
MURRAY	F 91	Alex. Stephen & Sons Ltd., Govan, Glasgow	22 Feb. 1955	5 June 1956
PALLISER	F 94	Alex. Stephen & Sons Ltd., Govan, Glasgow	10 May 1956	13 Dec. 1957
PELLEW	F 62	Swan, Hunter & Wigham Richardson Ltd., Wallsend	29 Sep. 1954	26 July 1956
RUSSELL	F 97	Swan, Hunter & Wigham Richardson Ltd., Wallsend	10 Dec. 1954	7 Feb. 1957



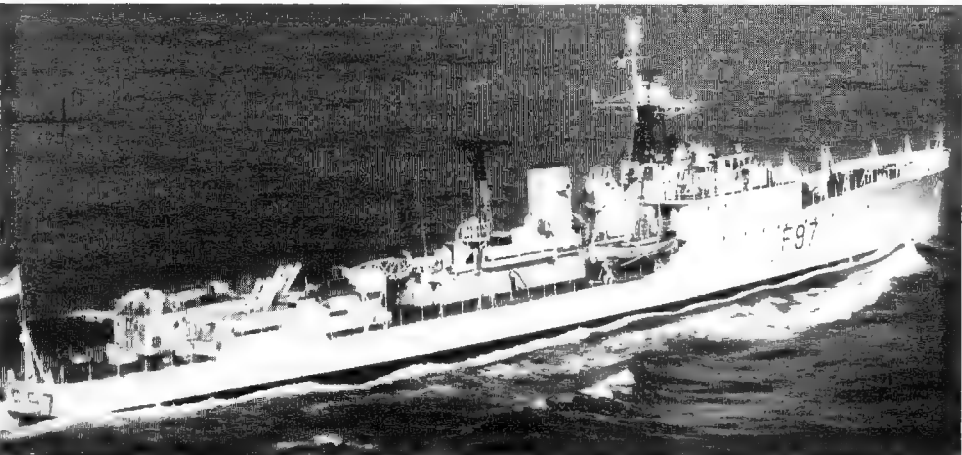
DUNDAS

1964, Skyfotos



EXMOUTH

1964, J. W. Kennedy



RUSSELL

1963, Official

Disposals of "Black Swan" Class

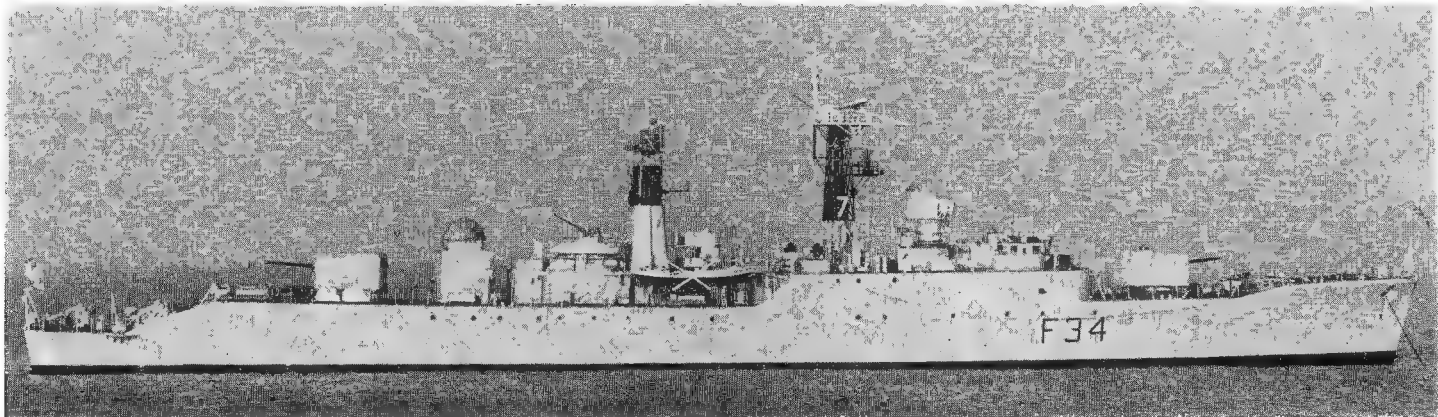
Woodcock was scrapped in 1955, Cygnet, Wild Goose, Wren, Amethyst, Alacrity, Black Swan, in 1956, Hind, Magpie, Nereide, Peacock, Redpole and Snipe in 1961, sum in 1960, Modeste, Redpole and Snipe in 1961, Pheasant in 1963, Crane in 1964. Starling was scrapped in 1965 (towed from Portsmouth on 6 July to be broken up at Sheerness).

Whimbrel was transferred to Egypt in 1949, Actaeon, Flamingo, Hart and Mermaid were allocated to West Germany in 1957, and delivered in 1958 and 1959.

Erne was reduced to a hulk for Solent Division R.N.R. in 1952 and renamed Wessex, but reverted to name Erne in 1964 and listed for scrap in 1965.

Ibis and Woodpecker were Second World War losses.

ANTI-AIRCRAFT FRIGATES



PUMA (after refit, with new main "mack")

1965, Official

4 "Leopard" Class. Type 41
(Diesel Anti-Aircraft Type)

Name	Pennant No.	Builders	Launched	Completed
JAGUAR	F 37	Wm. Denny & Bros. Ltd., Dumbarton	30 July 1957	12 Dec. 1959
LEOPARD	F 14	H.M. Dockyard, Portsmouth	23 May 1955	30 Sep. 1958
LYNX	F 27	John Brown & Co. Ltd., Clydebank	12 Jan. 1955	14 Mar. 1957
PUMA	F 34	Scotts' Shipbuilding & Engineering Co. Ltd., Greenock	30 June 1954	24 Apr. 1957

- Displacement: 2,300 tons standard (2,520 tons full load)
Dimensions: 320 (pp.), 330 (w.l.), 339½ (o.a.)×40×16 (max.) feet
Guns: 4—4.5 inch (two twin turrets), 2—40 mm. Bofors AA. (1 twin) see *Gunnery and Guided Missile* notes
A/S weapons: Squid triple-barrelled depth charge mortar
Machinery: 8 Admiralty standard range diesels in three engine rooms, 2 shafts, B.H.P.: 12,380=25 kts. 230 tons
Oil fuel: 2,300 miles at full power, 7,500 miles at 16 kts.
Radius: 195 to 205
Complement:

General

These ships are designed primarily for the protection of convoys against aircraft. They could also serve as a medium type of destroyers in offensive operations.

Construction

They are all welded, and the structural arrangements represented the latest in the development of modern technique, opportunity having been taken in their building to study the problems associated with rapid production in emergency conditions. *Jaguar*, *Lynx*, and *Puma* were ordered on 28 June 1951, *Leopard* was laid down on 25 Mar. 1953 and *Jaguar* on 2 Nov. 1953. Fitted with stabilisers. The construction of another ship ordered under the 1956-57 Navy Estimates to have been named *Panther*, was cancelled owing to the 1957 defence economies.

Engineering

The propelling machinery consists of Admiralty Standard Range 1 heavy oil engines coupled to the propeller shafting through hydraulic gear boxes. *Puma's* engines, of the latest Admiralty design, were manufactured by H.M. Dockyard, Chatham, and Polar Engines, Ltd., Glasgow, the installation being by Scotts' Shipbuilding and Engineering Co. Ltd. Engines of similar design are used for driving the ship's electric generators, and these were manufactured by Peter Brotherhood & Co. Ltd., Peterborough. *Lynx's* engines were manufactured by Crossley Brothers, Manchester, and British Polar Engines, Glasgow, the installation being by John Brown & Co. Ltd., and the ship's electric generators were by Vickers-Armstrongs. *Leopard's* engines were manufactured by Vickers-Armstrongs, Ltd., Barrow, and *Jaguar's* engine by Crossley Motors Ltd., Manchester. *Jaguar* is only ship of her class to be so fitted.

Design

While a study of propulsion machinery for frigates was proceeding the need for new frigates of various types emerged. The accent was still on long steaming range and small ships. The anti-aircraft and aircraft-direction frigates were to be two-shaft ships with 8,000 s.h.p. on each shaft. No suitable steam design was available. The Admiralty Standard Range 1 Diesel was under development and gave promise of being a good engine of low weight—about 17 lb./s.h.p. The installation, compared with those of war-time frigates, was a great improvement, and it was therefore decided to engine these ships with four A.S.R. 1 Engines geared to each shaft.

Fuel

The fuel tanks have a compensating system, so that sea water replaces oil fuel as it is used.

Guided Missile Armament

Jaguar is eventually to be fitted with "Seacat" close range anti-aircraft guided missiles (see *Gunnery* notes).

Displacement

The original design called for a standard displacement of 1,800 tons, but with improvements and additions incorporated during construction the ships turned out heavier (1,950 tons light displacement):



LYNX (after refit)

1965, courtesy Mr. Michael D. J. Lennon



JAGUAR

1964, Official

Nomenclature

All the ships of this class are named after big cats. Fifth and sixth ships of this class were successively to have been named *Panther* (see *General* notes above and *Class* notes below).

Photographs

A large starboard bow view of *Puma* appears in the 1959-60 edition, a starboard bow view of *Lynx* (before refit) in the 1957-58 to 1961-62 editions, a large starboard broadside view of *Jaguar* in the 1960-61 to 1962-63 editions, a port bow view of *Puma* (before refit) in the 1962-63 and 1963-64 editions, a starboard quarter oblique aerial view of *Leopard* in the 1959-60 to 1963-64 editions, a port near-broadside surface view of *Leopard* in the 1964-65 edition, and a large port broadside view of *Lynx* after refit in the 1963-64 and 1964-65 editions.

Reconstruction

Lynx underwent extended refit in 1963 with new main "mack", and *Puma* was similarly refitted in 1964.

Gunnery

The main armament of two twin 4.5 inch gun mountings and the gunnery armament control are similar to those mounted in the "Daring" class destroyers. The secondary armament, initially consisting of two Bofors guns, will eventually be replaced by "Seacat" ship-to-air guided missiles.

Class

A ship of this class, originally to have been named *Panther*, built by John Brown & Co. Ltd., Clydebank, originally intended for the Royal Navy, was transferred to the Indian Navy and renamed *Brahmaputra*, see Indian section. Another *Panther* was projected to take her place, but this ship was not built as a unit of this class or under that name (see *Nomenclature* notes on following page).

AIRCRAFT DIRECTION FRIGATES



LLANDAFF

1964, courtesy Godfrey H. Walker, Esq.

4 "Salisbury" Class. Type 61
(Diesel Aircraft Direction Type)

	Name	Pennant No.	Builders	Launched	Completed
	CHICHESTER	F 59	Fairfield S.B. & Eng. Co. Ltd., Govan, Glasgow	21 Apr. 1955	16 May 1958
	LINCOLN	F 99	Fairfield S.B. & Eng. Co. Ltd., Govan, Glasgow	6 Apr. 1959	7 July 1960
	LLANDAFF	F 61	Hawthorn Leslie (Shipbuilders) Ltd., Hebburn-on-Tyne	30 Nov. 1955	11 Apr. 1958
	SALISBURY	F 32	H.M. Dockyard, Devonport	25 June 1953	27 Feb. 1957

- Displacement: 2,170 tons standard (2,350 tons full load)
Dimensions: 320 (p.p.), 330 (w.t.), 339½ (o.a.)×40×15½ (max.) feet
Guns: 2—4.5 inch, 2—40 mm. AA. (1—40 mm. AA. in Lincoln)
see Guided Missile Armament
A/S weapons: Squid triple-barrelled depth charge mortar
Machinery: 8 Admiralty standard range diesels in three engine rooms. 2 shafts. B.H.P.: 12,380=25 kts. Gas turbine alternator in Llandaff (see Engineering)
Oil fuel: 230 tons
Radius: 2,300 miles at full power, 7,500 miles at 16 kts.
Complement: 207 (9 officers, 198 ratings) Llandaff 206 (8 officers) Lincoln 210 (10 officers)

General
The frigates of this class are designed primarily for the direction of carrier-borne and shore based aircraft. They could also serve as a lighter type of destroyer in offensive operations.

Construction
Chichester, Lincoln and Llandaff were ordered on 28 June, 1951. Salisbury, the prototype ship, was laid down on 23 Jan. 1952, Chichester on 25 June 1953, and Lincoln on 20 May 1955. Construction was all welded and the design largely prefabricated in such a manner as to allow for rapid building in emergency. The construction of the fifth ship, Exeter, ordered under the 1956-57 Navy Estimates, was cancelled owing to the 1957 defence economies. Fitted with stabilisers (except in Lincoln).

Engineering
Salisbury has twin screws and is powered by Admiralty Standard Range I, heavy oil engines coupled to propelling shafts through hydraulic couplings and oil operated reverse and reduction gear boxes. These engines, of the latest Admiralty design, were manufactured by Messrs. Vickers-Armstrongs, Barrow who also made the engines of similar design for driving the ship's electric generators. The hull was built and machinery and other fittings installed by Devonport Dockyard.

Llandaff has similar main engines manufactured by Messrs. British Polar, of Glasgow. Engines of similar design for driving the ship's electric generators were manufactured by Messrs. Vickers-Armstrongs, Barrow-in-Furness. Llandaff is the only Type 61 frigate to have a 500 kw. gas-turbine alternator and three diesel generators. Other ships of the class, and also Type 41 frigates, have four diesel generators. This new gas-turbine alternator was manufactured by Messrs. W. H. Allen & Sons, of Bedford.

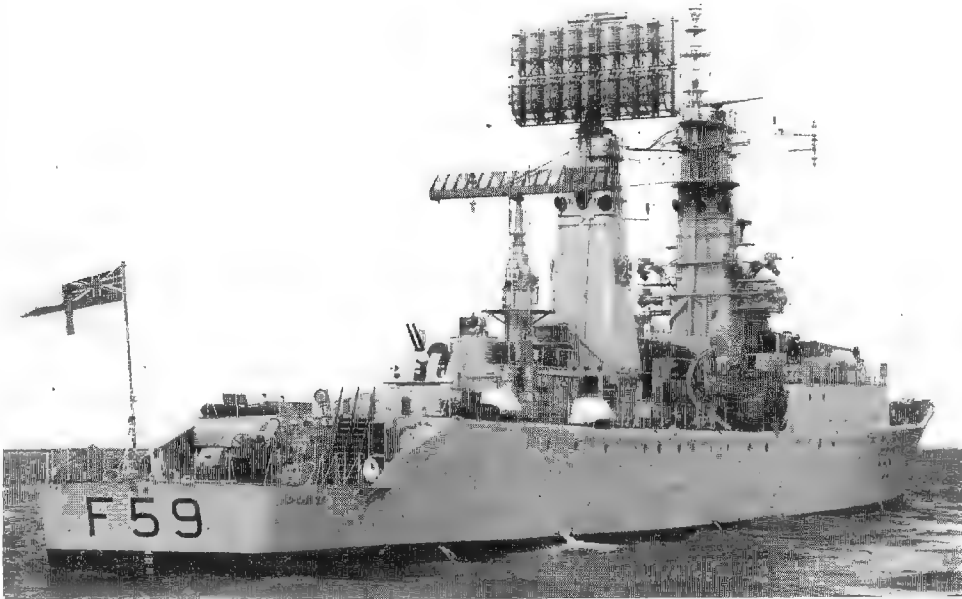
Lincoln is fitted with controllable pitch propellers, which are 12 feet in diameter, manufactured by Messrs. Stone Marine & Engineering Co. Ltd.

Fuel
The fuel tanks have a compensating system so that sea water replaces oil fuel as it is consumed.

Guided Missile Armament
A single 40 mm. AA. gun, mounted in Lincoln, as a temporary measure, will eventually be replaced by a "Seacat" guided missile launcher and director.

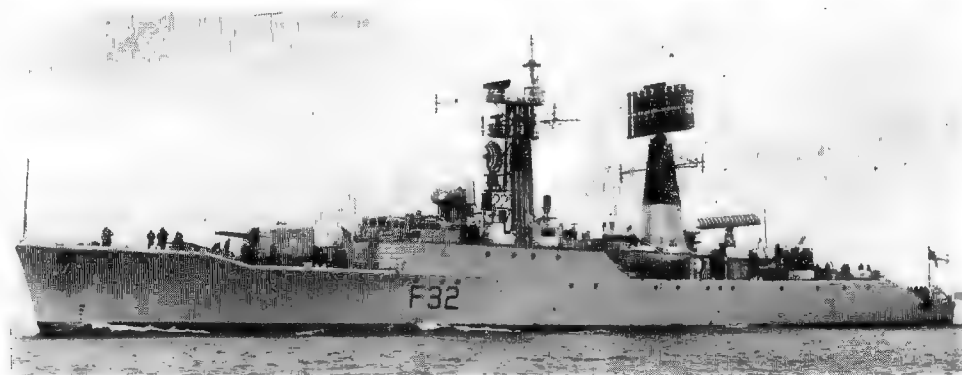
Nomenclature
All ships of this class are named after cathedral cities. A fifth ship was to have been named Exeter. A sixth ship, to have been named Coventry, was originally ordered as the Panther and has now been built as Penelope (see Nomenclature notes under "Leander" class and "Leopard" class on preceding pages). A seventh ship was to have been named Gloucester.

Displacement
The originally designed standard displacement was 1,738 tons, but with alterations and additions during construction the ships in fact turned out heavier.



CHICHESTER (with fore and main "macks")

1965, Official



SALISBURY (with main "mack")

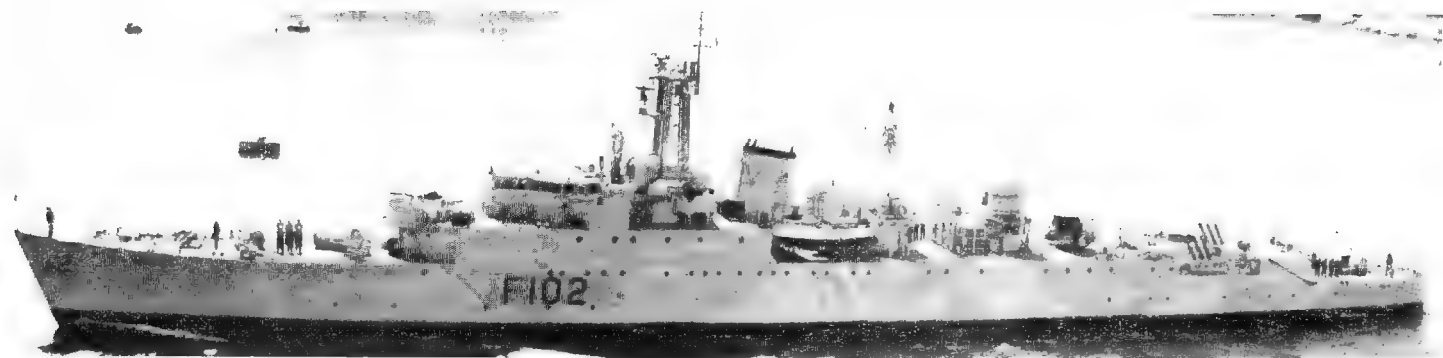
1965, Wright & Logan

Reconstruction
Salisbury underwent extended refit in 1962. Her after funnel and lattice mast combination was replaced by a single tall funnel with AD aerial on top, reminiscent of the U.S. combined mast and stack or "mack". Chichester underwent similar refit in 1964 but with both fore and main "macks".

Radar
These ships have highly developed electronic equipment. Chichester was fitted with a new type of radar display on the foremast and mainmast. The radar on the foremast consists of a "spoked" aerial of the "cart-wheel" type (without rim).

Photographs
Starboard quarter and starboard bow views of Salisbury (before reconstruction) appear in the 1957-58 (Diamond Jubilee) edition, starboard quarter and port bow views of Llandaff in the 1958-59 edition (in Addenda), a large starboard bow view of Chichester in the 1958-59 to 1960-61 editions, a port quarter view of Salisbury (before reconstruction) in the 1959-60 to 1961-62 editions, a port broadside surface view of Llandaff in the 1959-60 to 1962-63 editions, a starboard broadside view of Lincoln in the 1960-61 to 1963-64 editions, a large starboard broadside surface view of Salisbury after reconstruction in the 1963-64 and 1964-65 editions, and a port bow surface view of Chichester after reconstruction in the 1964-65 edition.

FAST ANTI-SUBMARINE FRIGATES (ex-Destroyers)



ZEST

10 "Type 15" 1st. Rate
"T", "U", "V", "W", and "Z" Classes
(Fully Converted from Destroyers)

Displacement:	2,240 tons standard (2,880 tons full load) ships vary slightly
Dimensions:	339½ (pp.), 350 w.l., 362½ (o.a.)×35½×17 (max.) feet
Guns:	2—4 inch (twin mount), 2—40 mm. Bofors AA.
A/S weapons:	"U" class, Troubridge and Zest: 2 Limbo three-barrelled depth charge mortars "V" and "W" class: 2 Squid triple-barrelled depth charge mortars
Tubes:	Provision for tubes. 8 Homing torpedo tubes fitted in <i>Ulster</i> , 4 fixed on each side
Machinery:	Parsons geared turbines. 2 shafts. S.H.P.: 40,000=36.75 kts. (designed), 31.25 kts. sea speed
Boilers:	2 Admiralty 3-drum type (300 lb./sq. in., 640 deg.F.)
Oil fuel	570 to 600 tons
Radius:	1,300 miles at full power. 2,800 to 3,000 miles at 20 kts.
Complement:	195 (15 officers, 180 ratings)

Zest
Fully converted from a destroyer into a fast anti-submarine frigate at H.M. Dockyard, Chatham, in Feb. 1954-1956. Has her twin 40 mm. mounting on the break of the forecastle.

"W" Class
Wakeful, ex-*Zebra* (by Scotts) and *Whirlwind* (by Palmers) were converted in 1952-53. *Wakeful* was re-fitted with higher open bridge in 1959 for Portsmouth Squadron duties, her 4 inch gun mounting being removed and replaced by a deckhouse.
A photograph of *Whirlwind* appears in the 1957-58 to 1959-60 editions.
Of the original flotilla of eight "W" class destroyers *Wessex* and *Whelp* were transferred to the South African Navy in 1950-52 and renamed *Jan van Riebeeck* and *Simon van Stel*, respectively, and *Kempenfelt* and *Wager* were sold to Yugoslavia in 1957 and renamed *Kotae* and *Pula*, respectively.

Of those converted into frigates *Wrangler* was transferred to the South African Navy on 29 Nov. 1956 and renamed *Vrystaat*, and *Wizard* was scheduled for disposal at the end of 1964.

"V" Class
Verulam was converted by H.M. Dockyard, Portsmouth, but she is now without 4 inch, Bofors, Squids or director as trials ship for testing new A/S equipment.

Of the original flotilla of eight "V" class destroyers, *Valentine* and *Vixen* were transferred to the Royal Canadian Navy in 1944 and renamed *Algonquin* and *Sioux*, respectively, and the leader *Hardy* was lost in the Second World War.

Of those converted into frigates *Vigilant* and *Virago* were sold for scrap in 1965, *Venus* was scheduled for disposal by scrapping in 1965, and *Volage*, latterly used as Royal Marines Training Ship, was transferred from the Sales List to the Scrap List in 1965.

"U" Class
Converted in 1952-54, *Ulster* at H.M. Dockyard, Chatham, *Ulysses* at H.M. Dockyard, Devonport, *Undaunted* by J. Samuel White & Co. Ltd., Cowes, *Urania* by Harland & Wolff, Liverpool, and *Ursa* by Palmers, Hebburn, *Ulster* has a bowl-shaped sponson at the break and "Leopard" type bridge, *Grenville* and *Undaunted* are fitted with helicopter platform aft.

Photographs of *Grenville* in the 1958-59 edition, of *Ulster* and *Urania* in the 1959-60 to 1961-62 editions *Ulysses*, *Undine* and *Urchin* were all listed for disposal by scrapping in 1965.

Troubridge
This ship is different from early Type 15's. Her conversion was started by H.M. Dockyard, Portsmouth, in 1955, but completed by J. Samuel White & Co. Ltd., Cowes, on 29 July 1957. Has "Leopard" type bridge and 40 mm. mounting on the break of the forecastle. Sister ships *Teazer*, *Tenacious*, *Termagant*, *Terpsichore*, *Tumult*, *Tuscan* and *Tyrian* underwent limited conversion from destroyers to fast anti-submarine frigates, but have now all been scrapped or scheduled for disposal, see following page.

Name	Pennant No.	Builders	Laid down	Launched	Completed
GRENVILLE	F 197	Swan, Hunter & Wigham Richardson, Ltd.	1 Nov. 41	12 Oct. 42	27 May 43
TROUBRIDGE	F 09	John Brown & Co. Ltd., Clydebank	10 Nov. 41	23 Sep. 42	8 Mar. 43
ULSTER	F 83	Swan, Hunter & Wigham Richardson, Ltd.	12 Nov. 41	9 Nov. 42	30 June 43
UNDAUNTED	F 53	Cammell Laird & Co. Ltd., Birkenhead	8 Sep. 42	19 July 43	3 Mar. 44
URANIA	F 08	Vickers-Armstrongs Ltd., Barrow	18 June 42	19 May 43	18 Jan. 44
URSA	F 200	John I. Thornycroft & Co. Ltd., Woolston	2 May 42	22 July 43	1 Mar. 44
VERULAM	F 29	Fairfield S.B. & Eng. Co. Ltd., Govan	26 Jan. 42	22 Apr. 43	10 Dec. 43
WAKEFUL	F 159	Fairfield S.B. & Eng. Co. Ltd., Govan	3 June 42	30 June 43	17 Feb. 44
WHIRLWIND	F 187	R. & W. Hawthorn, Leslie & Co. Ltd.	31 July 42	30 Aug. 43	20 July 44
ZEST	F 102	John I. Thornycroft & Co. Ltd., Woolston	21 July 42	14 Oct. 43	20 July 44



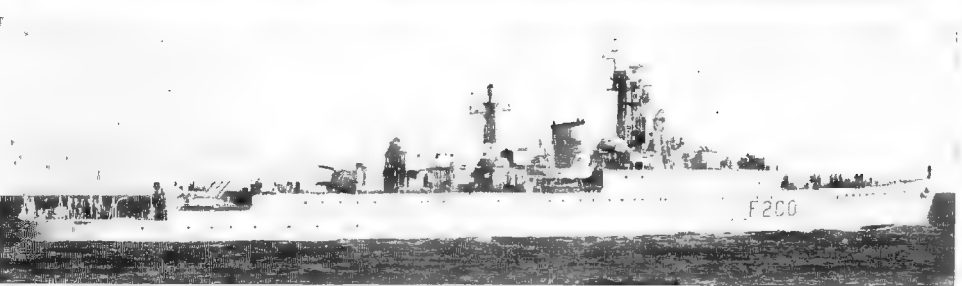
TROUBRIDGE

1965, Wright & Logan



WAKEFUL

1965, Dr. Giorgio Arra



URSA (Limbo aft)

1963, A. & J. Pavia



UNDAUNTED (helicopter platform aft)

1962, Wright & Logan

Fast Anti-Submarine Frigates (ex-Destroyers)—continued

I Early "Type 15" 1st Rate
"R" Class.
(Fully Converted from Destroyers)

RELENTLESS

Pennant No.:	F 185
Builders:	John Brown & Co. Ltd., Clydebank
Laid down:	20 June 1941
Launched:	15 July 1942
Completed:	30 Nov. 1942
Displacement:	2,200 tons standard (2,700 tons full load)
Dimensions:	339½ (pp.), 350 (w.l.), 358½ (o.a.)×35½×17 (max.) feet
Guns:	2—4 inch (twin mount), 2—40 mm. Bofors AA.
A/S weapons:	2 "Limbo" three barrellled depth charge mortars. Provision for tubes
Machinery:	Parsons geared turbines. 2 shafts. S.H.P.: 40,000=36.75 kts. (designed) 31.25 kts. sea speed
Boilers:	2 Admiralty 3-drum type
Oil fuel:	580 tons
Radius:	2,800 miles at 20 kts.
Complement:	180

Conversion
Former fleet destroyer, converted to prototype fast frigate. Bridges, funnel, masts superstructure, 4—4.7 inch guns in single mountings, 4—2 pdr. pompoms, 8—



RELENTLESS

1964, Wright & Logan

20 mm. AA. guns and 8—21 inch tubes in quadruple mountings, were removed entirely and the ship was stripped down to the bare hull. The forecastle deck was then extended aft, extensive use being made of aluminium to reduce top weight. A new superstructure was built up, two short lattice masts stepped, short raked funnel erected, and two anti-submarine mortars arranged en echelon, mounted in the after shelter deck. She had a completely new armament, and represented the new conception of a frigate submarine-killer. Conversion at H.M. Dockyard, Portsmouth, was completed in July 1951. Fitted with torpedo tubes for experimental purposes. Refitted in 1955-56.

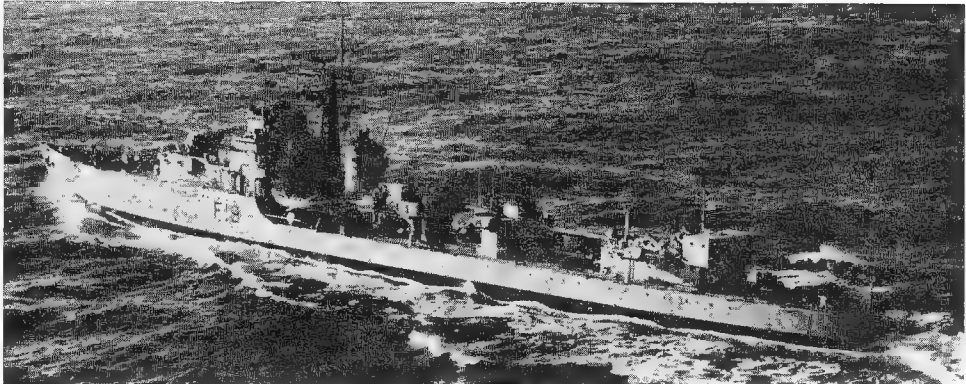
Photographs
A photograph of *Rapid* appeared in the 1963-64 edition.
Class
Of four original sister ships *Racehorse* was scrapped (as destroyer) in 1950, and *Raider*, *Redoubt* and *Rotherham* (Leader) were transferred to the Indian Navy (as destroyers) in 1949 and renamed *Rana*, *Ranjit* and *Rajput*, respectively.
Disposals
Sister ships *Roebuck* and *Rocket* were on the list for disposal by scrapping in 1965, and *Rapid* was on the sales list in 1965.

I "Type 16" 1st Rate
"T" Class.
(Limited Conversion from Destroyers)

TERPSICHORE

Pennant No.:	F 19
Builders:	Wm. Denny & Bros. Ltd., Dumbarton
Laid down:	25 Nov. 1941
Launched:	17 June 1943
Completed:	20 Jan. 1944
Displacement:	2,000 tons standard (2,650 tons full load)
Dimensions:	339½ (pp.), 350 (w.l.) 362½ (o.a.)×35½×16½ (max.) feet
Guns:	2—4 inch (twin), 7—40 mm. Bofors AA. (twin and singles)
Tubes:	4—21 inch (quadruple mount)
A/S weapons:	2 Squid triple-barrelled depth charge mortars
Machinery:	Parsons geared turbines. S.H.P.: 40,000=36.75 kts. (designed), 31.25 kts. sea speed
Boilers:	2 Admiralty 3-drum type
Oil fuel:	580 tons
Radius:	2,800 miles at 20 kts.
Complement:	175

Conversion
A simpler form of conversion from fleet destroyer which gave a fast ship with good anti-submarine qualities more rapidly than a full conversion of the "Relentless" type. Converted by John I. Thornycroft & Co. Ltd., Woolston, Southampton, in 1952-53.



TERPSICHORE

Official

Photographs
A photograph of *Tumult* appeared in the 1964-65 edition.
Appearance
Terpsichore (with three other ships of the class) had new bridge structure, lighter, higher and more square than the destroyer type of bridge in previous fast frigates of limited conversion.

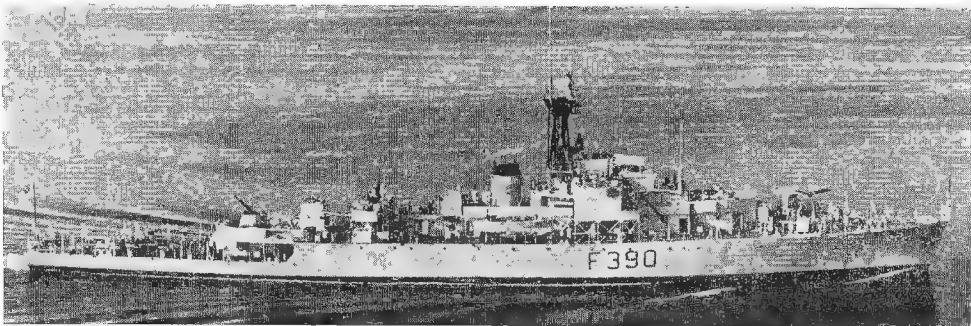
Class
Former leader of this class, *Troubridge* was fully converted (see earlier page).
Disposals
Teazer was on the disposal list in 1962, *Tenacious*, *Termagant* and *Tyrian* in 1963, and *Tumult* and *Tuscan* were listed for disposal by scrapping in 1965. *Terpsichore* is laid up, dehumified.

FRIGATES

2 "Loch" Class. 2nd Rate
(Anti-Submarine Type)

Name:	LOCH FADA	LOCH KILLISPORT
Pennant No.:	F 390	F 628
Builders:	John Brown & Co. Ltd., Clydebank	Harland & Wolff Ltd., Belfast
Laid down:	8 June 1943	28 Dec. 1943
Launched:	14 Dec. 1943	9 July 1944
Completed:	10 Apr. 1944	9 July 1945
Displacement:	1,575 tons standard (2,400 tons full load)	
Dimensions:	286 (pp.), 297½ (w.l.), 307 (o.a.)×38½×14½ (max.) feet	
Guns:	2—4 inch, 6—40 mm. AA.	
A/S weapons:	2 Squid triple-barrelled depth charge mortars	
Machinery:	Triple expansion. 2 shafts. I.H.P.: 5,500—19.5 kts.	
Boilers:	2 Admiralty 3-drum type	
Oil fuel:	753 tons	
Radius:	9,500 miles at 12 kts.	
Complement:	124 to 140	

General
Designed mainly for anti-submarine escort. Originally displaced 1,435 tons standard (2,260 tons full load). *Loch Killisport* has fibre glass shield on "A" gun. When modernised these ships were air-conditioned for service in the Persian Gulf.
Gunnery
Before modernisation they mounted 1—4 inch, 4—40 mm. AA. and 4—2 pdr. guns.
Transfers
Loch Ard, *Loch Boisdale* and *Loch Cree* were presented to the South African Navy in 1944-45, and renamed



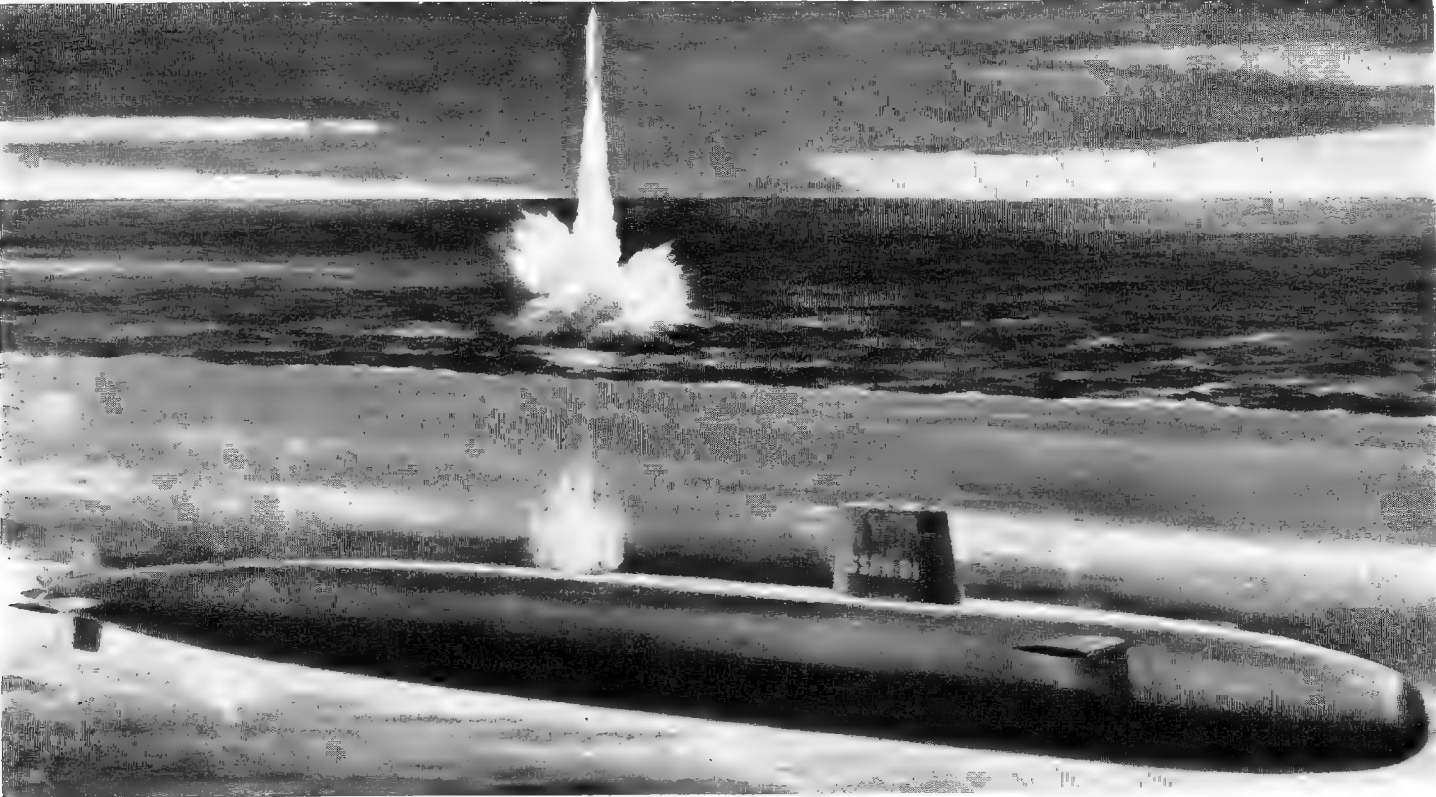
LOCH FADA

1964, Official

Transvaal, *Good Hope*, and *Natal*, respectively, and *Loch Achanalt*, *Loch Achray*, *Loch Eck*, *Loch Katrine*, *Loch Morlich* and *Loch Shin* were sold to the Royal New Zealand Navy in 1948 and renamed *Pukaki*, *Kanieri*, *Hawea*, *Rotoliti*, *Tutira* and *Taupo*, respectively. *Loch Insh* was transferred to the Royal Malaysian Navy in 1964 and renamed *Hang Tuah*.
Disposals
Loch Glendu and *Loch Quoich* were scrapped in 1957, *Loch Scavaig* in 1958, *Loch Tarbert* in 1959, *Loch Akaig* in 1960, *Loch Dunvegan* and *Loch Killin* in 1961, *Loch Gorm* in 1962. *Loch Craggie*, *Loch Fyne*, *Loch More*, *Loch Ruthven*, *Loch Tralig* and *Loch Weyatie* were on the sales or scrap lists in 1963. *Loch Alvie* was scrapped in 1965 and *Loch Lomond* was listed for disposal by scrapping in 1965.
Modified "Loch" Class Disposals
Woodbridge Haven (ex-*Loch Torridon*), built as a "Loch" class frigate but converted into a Submarine

Depot and Repair Ship and reclassified as a Minesweeper Support Ship in 1960, was broken up at Blyth in Aug. 1965.
Sister ship *Derby Haven* (ex-*Loch Assynt*) was transferred as a frigate to the Imperial Iranian Navy (Persia) in 1949 and renamed *Babr* (*Panther*).
Of the two Flag Frigates (Despatch Vessels) of the Modified "Loch-Bay" Type, *Surprise* (ex-*Gerrams Bay*, ex-*Loch Carron*) was scrapped in 1965 (towed from Portsmouth on 26 June to the shipbreakers' yard on the Firth of Forth); and *Alert* (ex-*Dundrum Bay*, ex-*Loch Scamadale*) was paid off in 1964 for disposal in due course.
Disposals of Smaller "Type 16" Limited Conversions
Of the three fast anti-submarine frigates of the Smaller "Type 16", Limited Conversion from Destroyers, *Paladin* was on the disposal list in 1962, and *Orwell* and *Petard* (ex-*Persistent*) were listed for disposal by scrapping in 1965.

SUBMARINES



POLARIS (artist's impression)

Nuclear Powered Fleet Ballistic
Missile Submarines (SSBN)

4 "Resolution" Class

RENOWN	REPULSE	RESOLUTION	REVENGE
Builders:			
Vickers-Armstrongs Ltd., Barrow-in-Furness (two)			
Cammell Laird & Co. Ltd., Birkenhead (two)			
Ordered:			
8 May 1963 (officially announced)			
Laid down:			
26 Feb. 1964 (<i>Resolution</i>) V.A.			
25 June 1964 (<i>Renown</i>) CL			
Completion:			
Scheduled for July 1968 (two) and July 1969 (two)			

Displacement:	7,000 tons (official figure)
Dimensions:	Length: 410 feet. Beam: 33 feet. Draught: 30 feet (unofficial approximate figures)
Guided weapons:	16 "Polaris" tubes amidships for A-3 model missiles with a range of 2,875 miles
Tubes:	6—21 inch forward
Machinery:	1 pressurised water-cooled nuclear reactor. Geared steam turbines, 1 shaft. Speed=20 kts. (surface), 35 kts. (submerged) unofficial figures
Cost:	£15,000,000 each excluding missiles, £70,000,000 each (total)
Complement:	112 (12 officers, 100 ratings) Two crews (see <i>General notes</i>)
General	In Feb. 1963 it was officially stated that it was in-

1963, Official

tended to order four or five 7,000 ton nuclear powered submarines, each to carry 16 "Polaris" missiles, and it was planned that the first would be on patrol in 1968. Their hulls and machinery would be of British design. As well as building two submarines Vickers-Armstrongs would give lead yard services (i.e. act as the "parent" firm) to the builder of the other two. The intention to build a fifth Polaris submarine was confirmed by the then Ministry of Defence on 26 Feb. 1964, but this intention was rescinded by a new Ministry of Defence on 15 Feb. 1965. The submarines differ in several respects from United States Polaris submarines, notably in having six torpedo tubes instead of four, and modified habitability. Each submarine will be manned on a two-crew basis, in order to get maximum operational time at sea (on the pattern of the system in the United States Polaris submarines in which two complete crews relieve each other approximately every three months.



VALIANT

Nuclear Powered Attack
Submarines
Hunter Killer (Anti-Submarine) Type
2+1 "Valiant" Class

Name:	VALIANT	WARSPITE
Pennant No.:	S 102	S 103
Builders:	Vickers-Armstrongs	Vickers-Armstrongs
Engineers:	Rolls Royce Ltd.	Rolls Royce Ltd.
Ordered:	Aug. 1960	12 Dec. 1962
Begun:	Feb. 1961	June 1963
Laid down:	22 Jan. 1962	10 Dec. 1963
Launched:	3 Dec. 1963	25 Sep. 1965
Displacement:	4,500 tons submerged	
Dimensions:	285×33½×27 feet	
Tubes:	6—21 inch homing	
Machinery:	British prototype, pressurised water-cooled nuclear reactor. Geared steam turbines, 1 shaft	
Complement:	90 (11 officers and 79 ratings)	

General

It was announced on 31 Aug. 1960 that the contract for a second nuclear powered submarine (*Valiant*) had been awarded to Vickers-Armstrongs (Shipbuilders Ltd.), the principal sub-contractors being Vickers-Armstrongs (Engineers) Ltd., for the machinery and its installation, and Rolls Royce and Associates for the nuclear steam raising plant. Her hull is broadly of the same design as that of *Dreadnought*, but she is slightly larger. She was originally scheduled to be completed in Sep. 1965, but work was held up by the urgency of the "Polaris" programme.

Repeat Orders

The intention to order the third nuclear powered submarine (*Warspite*) from Vickers-Armstrongs Ltd. was announced by the Ministry of Defence on 10 Aug. 1962, and the intention to order the fourth on 13 Mar. 1965.

Engineering

It was stated that *Valiant's* reactor core would be made in Great Britain, and her machinery would be

3 Dec. 1963, Official

of British design and manufacture after the pattern of the shore prototype installed in the Admiralty Reactor Test Establishment at Dounreay. The contract for the design and manufacture of the main propulsion steam turbines and condensers was awarded to the English Electric Company. The machinery was built at their Rugby works. Laurence, Scott & Electromotors Ltd. were given the order for the design and manufacture of the electrical propulsion machinery and control gear.

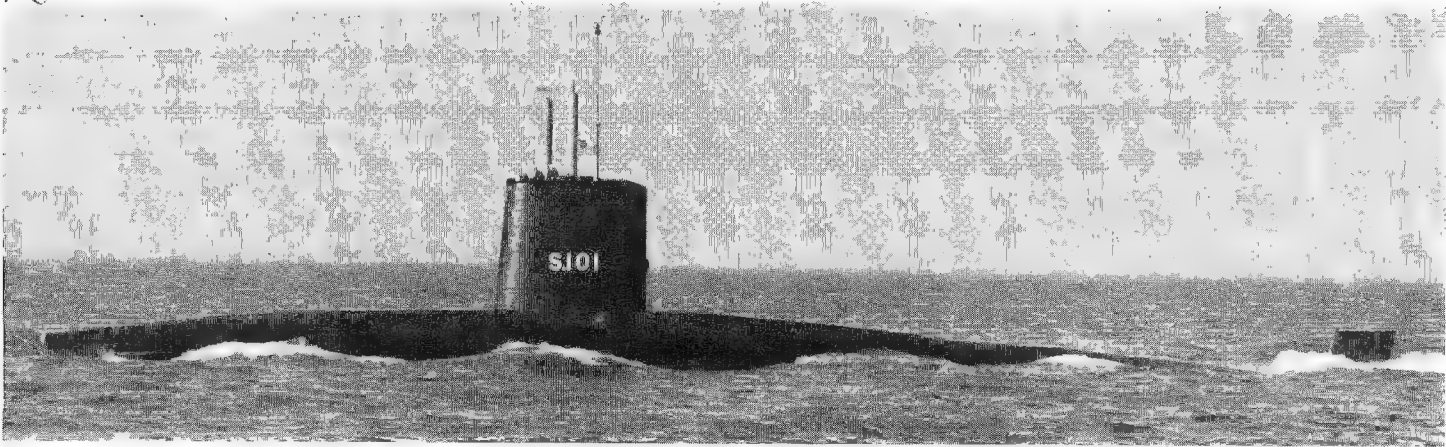
Anti-Submarine Warfare

It was stated that *Valiant* would be equipped to hunt and kill enemy submarines and surface warships, and also designed to carry sonar gear to detect at much greater ranges than that at present fitted in British conventional submarines. She would not carry ballistic missiles, and could not be converted to do so, as ballistic missile submarines are of different size and design.

Nomenclature

All the names given to British nuclear powered submarines are former battleship names of the first and second world wars. The name originally chosen for the second nuclear submarine (*Valiant*) was *Inflexible*.

Submarines—continued



DREADNOUGHT

1963, Official

I Prototype Nuclear Powered DREADNOUGHT

Pennant No.: S 101
Builders: Vickers-Armstrongs, Barrow
Engineers: Rolls-Royce and Westinghouse
Laid down: 12 June 1959
Launched: 21 Oct. 1960
Completed: 17 Apr. 1963 (commissioned)
Cost: £18,455,000

Displacement: 3,000 tons standard, 3,500 tons surface, 4,000 tons submerged
Dimensions: 265½×32½×26 feet
Tubes: 6—21 inch (bow). All internal
Machinery: Pressurised water nuclear reactor. Geared steam turbines, 1 shaft
Speed: 30 kts. (approx.)
Complement: 88 (11 officers, 77 ratings)

General
The Royal Navy's first nuclear powered submarine, specially designed to hunt and destroy enemy underwater craft. A prominent feature of her design is her whale-shaped hull, the near-perfect streamlining giving maximum underwater efficiency, while the fin-like conning tower is also aimed at reducing "drag" to a minimum. She is capable of continuous high underwater speed and has long endurance. Her hull is British built, but her nuclear plant was manufactured in the United States. It was announced by the Royal Navy on 10 Aug. 1959 that the General Dynamics Corporation, U.S.A., had been awarded a contract for help in her construction.

Engineering

A complete nuclear reactor for installation in *Dreadnought* was purchased in the United States. The General Dynamics Corporation provided design, material and technical assistance in the installation of the propulsion system. The propulsion plant itself was placed under contract to the Westinghouse Electric Corporation by Rolls-Royce acting as agents for the Royal Navy.

Photographs

A starboard quarter oblique aerial view of *Dreadnought* at speed appears in the 1963-64 edition.

Manoeuvrability

This submarine manoeuvres and travels underwater with movements similar to those of an aircraft banking in flight, as she has controls like those of an aeroplane.

Official Statement

As originally planned *Dreadnought* was to have been fitted with a British designed and built nuclear reactor, but in 1958 an agreement was concluded with the United States Government for the purchase of a complete set of propulsion machinery of the type fitted in U.S.S. *Skipjack*. This agreement enabled the submarine to be launched far earlier. The supply of this machinery was made under a contract between the Westinghouse Electric Corporation and Rolls-Royce. The latter were also supplied with design and manufacturing details of the reactor and with safety information and set up a factory in this country to manufacture similar cores.

Dreadnought has a hull of British design both as regards structural strength and hydrodynamic features,

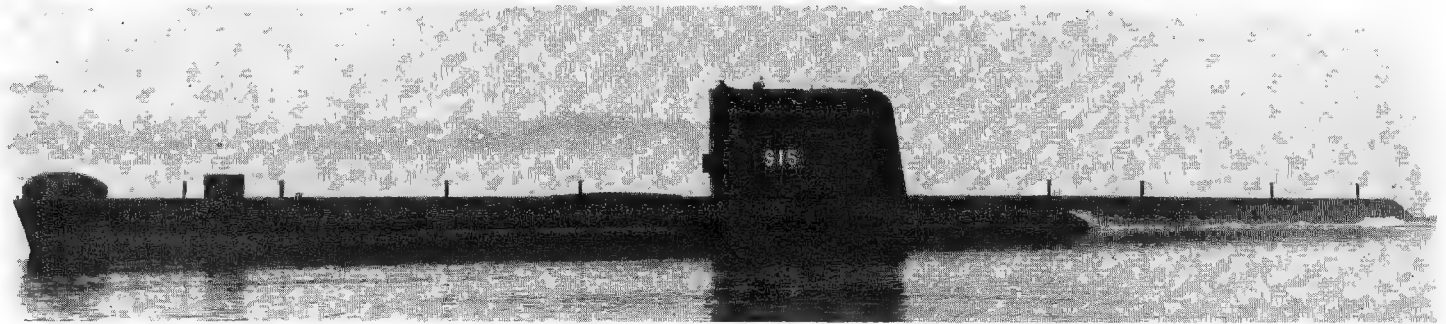
although the latter are based on the pioneering work of the U.S. Navy in *Skipjack* and *Atacore*. From about amidships aft, the hull lines closely resemble *Skipjack* to accommodate the propulsion machinery. The forward end is wholly British in concept. In the Control Room and Attack Centre the instruments are fitted into consoles.

Almost every electrical and mechanical part of the propulsion machinery is installed in duplicate to minimise the inconvenience of breakdowns. In addition, every control feature of the power plant and of the boat is duplicated. These innovations ensure an extremely high standard of reliability which, combined with the need to refuel at only very long intervals, give her the ability to undertake patrols of particularly long endurance at continued high underwater speeds.

Accommodation for her crew is of a standard impossible to attain in any previous submarine. The improved water distilling plant for the first time provides unlimited fresh water for shower baths and for washing machines in the fully equipped laundry. Separate mess spaces are provided for senior and junior ratings, arranged on either side of a large galley, equipped for serving meals on the cafeteria system. Particular attention was paid to the decoration and furnishings of living quarters and to recreational facilities which include cinema equipment, an extensive library and tape recordings, features which help to offset the monotony associated with prolonged underwater voyages.

She is fitted with an inertial navigation system and with means of measuring her depth below ice.

Her primary role is as a submarine hunter-killer for which purpose she is equipped with the latest developments in underwater weapons and detection.



OTTER

1963, Official

Attack Submarines 13 "Oberon" Class

Displacement: 1,610 tons standard, 2,030 tons surface, 2,410 tons submerged
Dimensions: 295½ (o.a.) 241 (pp.)×26½×18 feet
Tubes: 8—21 inch for homing torpedoes
Machinery: Admiralty Standard Range diesels. Electric drive. Speed=over 15 kts. submerged (official)
Complement: 68 (6 officers, 62 ratings)

General
This class have improved detection equipment and are capable of high underwater speeds. They are able to maintain continuous submerged patrols in any part of the world and are equipped to fire homing torpedoes.

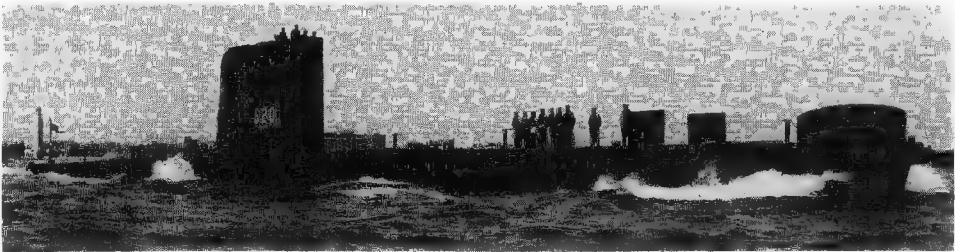
Construction
For the first time in British submarines plastic was used in the superstructure construction. Before and abaft the bridge the superstructure is mainly of glass fibre laminate in most units of this class. The superstructure of *Orpheus* is of light alloy aluminium.

* The submarine of this class laid down on 27 Sep. 1962 at H.M. Dockyard as *Onyx* for the Royal Navy was launched on 29 Feb. 1964 as *Ojibwa* for the Royal Canadian Navy. She was replaced by another "Oberon" class submarine for the Royal Navy built by Cammell Laird.

Photographs

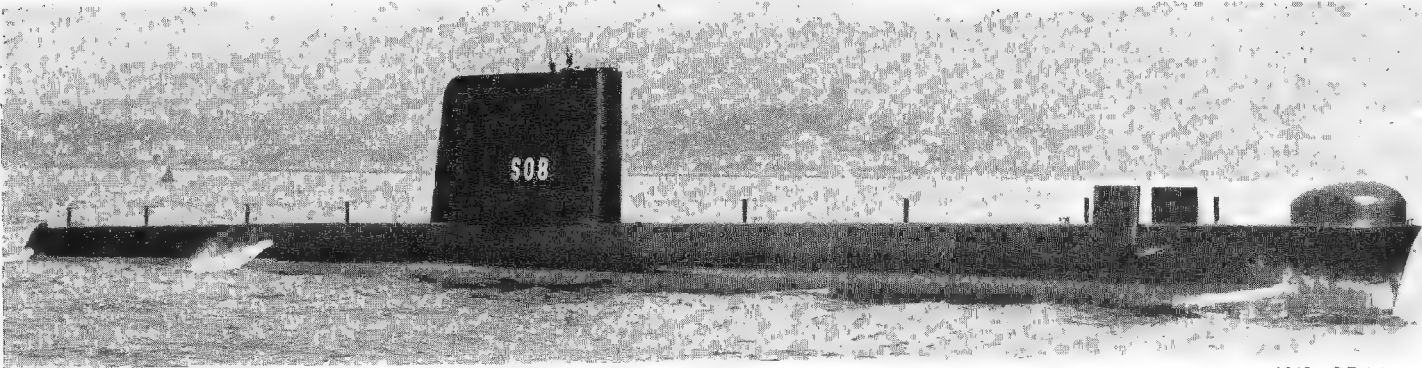
Photographs of *Oberon* and *Orpheus* appear in the 1961-62 and 1962-63 editions, and of *Oracle* in the 1963-64 and 1964-65 editions.

Name	Pennant No.	Builders	Laid down	Launched	Completed
OBERON	S 09	H.M. Dockyard, Chatham	17 Nov. 1960	18 July 1959	Feb. 1961
OCELOT	S 17	H.M. Dockyard, Chatham	27 Apr. 1959	5 May 1962	3 Jan. 1964
ODIN	S 10	Cammell Laird & Co. Ltd., Birkenhead	4 Mar. 1960	4 Nov. 1960	3 May 1962
OLYMPUS	S 12	Vickers-Armstrongs Ltd., Barrow	8 Apr. 1959	14 June 1961	7 July 1962
ONSLAUGHT	S 14	H.M. Dockyard, Chatham	16 Nov. 1964	24 Sep. 1960	14 Aug. 1962
ONYX	S 21	Cammell Laird & Co. Ltd., Birkenhead	21 Dec. 1961	23 May 1963	5 June 1964
OPPOSUM	S 19	Cammell Laird & Co. Ltd., Birkenhead	26 Oct. 1962	14 Feb. 1964	29 Dec. 1964
OPPORTUNE	S 20	Scotts' Shipbding & Eng. Co. Ltd., Greenock	26 Apr. 1960	26 Sep. 1961	14 Feb. 1963
ORACLE	S 16	Cammell Laird & Co. Ltd., Birkenhead	17 Nov. 1959	25 Nov. 1960	15 Nov. 1960
ORPHEUS	S 11	Vickers-Armstrongs Ltd., Barrow	26 Jan. 1962	29 Nov. 1962	11 Jan. 1964
OSIRIS	S 13	Vickers-Armstrongs Ltd., Barrow	31 May 1961	17 Oct. 1962	5 Oct. 1963
OTTER	S 15	Scotts' Shipbding & Eng. Co. Ltd., Greenock			
OTUS	S 18	Scotts' Shipbding & Eng. Co. Ltd., Greenock			



OPPORTUNE

1965, Wright & Logan



WALRUS

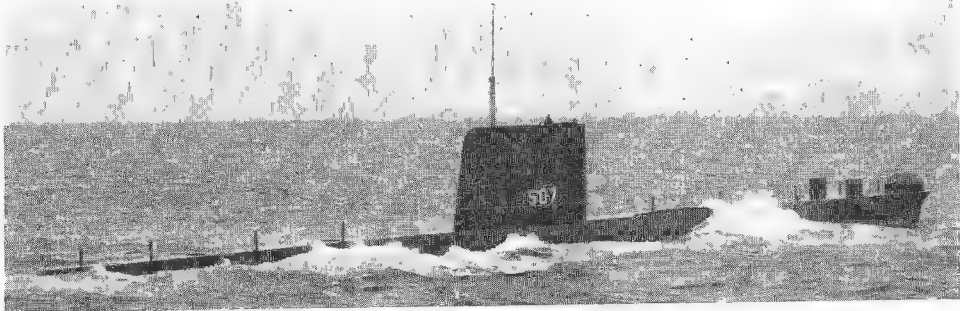
1963, Official

Attack Submarines
8 "Porpoise" Class

Displacement: 1,605 tons standard, 2,030 tons surface, 2,405 tons submerged
Dimensions: 295½ (o.a.), 241 (pp.)×26½×18 feet
Tubes: 8—21 inch. Internal (6 bow and 2 stern) 30 torpedoes carried
Machinery: 2 ASR 1 turbocharged 16-cyl. diesel generator sets. 2 shafts. B.H.P.: 3,300=12 kts. surface
2 main batteries. Electric drive. H.P.: 5,000=17 kts. submerged
Complement: 71 (6 officers, 65 ratings)

General
Porpoise was the first operational submarine designed since the Second World War to be accepted into service. Able to undertake continuous submerged patrol in any part of the world. The design of hull and superstructure gives capabilities of high underwater speed and great diving depth. Stress was also laid on long endurance, both on the surface and submerged, whether on batteries or snorting. Propelled on the surface, or when snorting, by diesel-electric drive from Admiralty Standard Range diesels, and from large batteries driving the motors when submerged. The snort equipment was designed to give maximum snort-charging facilities and to operate in rough sea conditions. Both air and surface warning radar can be operated at periscope depth as well as when surfaced. The general habitability is of the highest standard, with strip lighting and air conditioning plant which provides drying and either heating or cooling of the air for arctic or tropical service; Oxygen replenishment and carbon dioxide and hydrogen eliminators make it possible to remain totally submerged without even using snort for several days. Apparatus to distil fresh water from sea water for drinking, and stowage for large quantities of stores and provisions enable the boats to remain on patrol for months without outside support.

Name	Pennant No.	Builders	Launched	Completed
CACHALOT	S 06	Scotts' Shipbuilding & Engineering Co. Ltd., Greenock	11 Dec. 1957	1 Sep. 1959
FINWHALE	S 05	Cammell Laird & Co. Ltd., Birkenhead	21 July 1959	19 Aug. 1960
GRAMPUS	S 04	Cammell Laird & Co. Ltd., Birkenhead	30 May 1957	19 Dec. 1958
NARWHAL	S 03	Vickers-Armstrongs Ltd., Barrow-in-Furness	25 Oct. 1957	4 May 1959
PORPOISE	S 01	Vickers-Armstrongs Ltd., Barrow-in-Furness	25 Apr. 1956	17 Apr. 1958
RORQUAL	S 02	Vickers-Armstrongs Ltd., Barrow-in-Furness	5 Dec. 1956	24 Oct. 1958
SEALION	S 07	Cammell Laird & Co. Ltd., Birkenhead	31 Dec. 1959	25 July 1961
WALRUS	S 08	Scotts' Shipbuilding & Engineering Co. Ltd., Greenock	22 Sep. 1959	10 Feb. 1961



SEALION

1962, Official

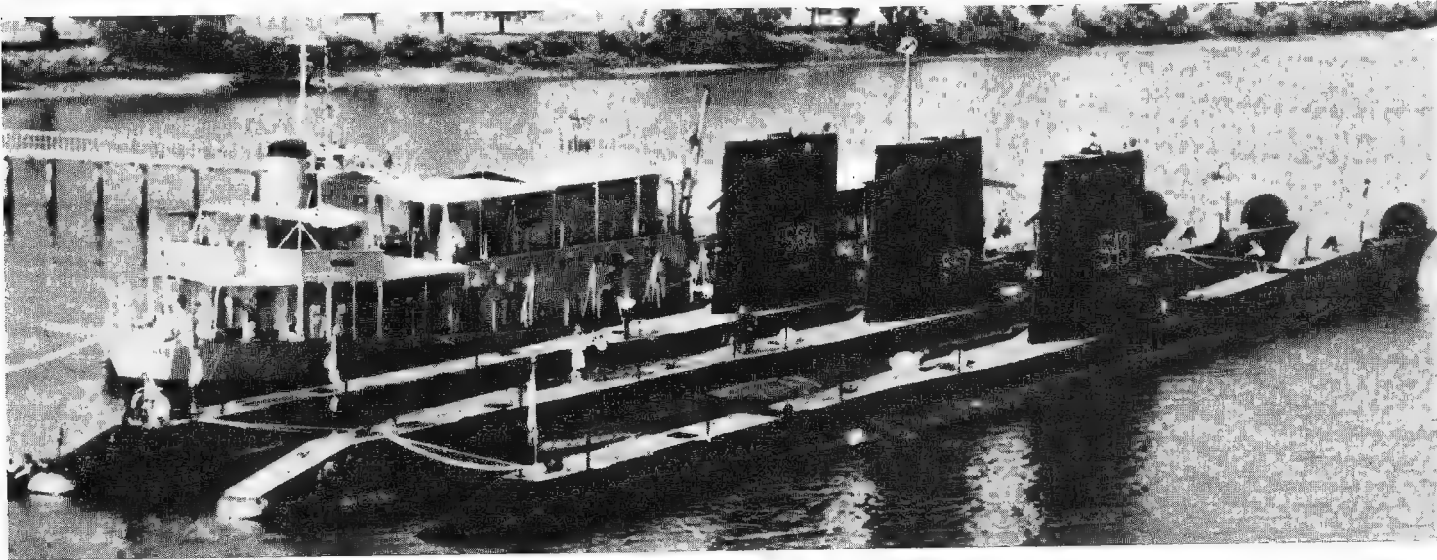
Engineering
The propelling machinery was made by the builders except *Cachalot* and *Walrus*, by H.M. Dockyard, Chatham.
Electrical
The electric propulsion system in all eight was manufactured by The English Electric Co. Ltd., Rugby, and was of more advanced design than hitherto.

Photographs
Photographs of *Grampus* and *Porpoise* appear in the 1959-60 edition, a larger photograph of *Porpoise* in the 1958-59 to 1960-61 editions, and photographs of *Narwhal* and *Rorqual* in the 1959-60 and 1960-61 editions, of *Cachalot* in the 1960-61 and 1961-62 editions, and *Finwhale* in the 1961-62 and 1962-63 editions.

Disposals of "Ex" Class
Of the two experimental fast submarines with propelling machinery employing high test peroxide, the first submarines of post-war design to be built for the Royal Navy, *Explorer*, S 30, was discarded in 1963 and sold for scrap in 1965, and *Excalibur*, S 40, was listed for disposal by scrapping in 1965.
Disposals of "S" Class
Sidon, which sank after a torpedo explosion forward in Portland Harbour on 16 June 1955, but was salvaged a week later, was towed out of Portland Harbour and sunk off Portland on 14 June 1957 in 20 to 25 fathoms to be used by the Navy as a target on the sea bottom. *Selene* was discarded in 1957 and subsequently scrapped. *Sleuth*, *Sturdy* and *Subtle* were scrapped in 1958 and *Seneschal* and *Scythian* in 1960. *Satyr*, *Spiteful* and *Statesman* were also scrapped (see *Transfers*), and *Scorcher*, *Solent* and *Sentinel* were

scheduled for scrapping in 1961. *Sea Devil*, the last operational submarine of this class at sea, was scheduled to be scrapped in Mar. 1962. *Seascope* was scheduled for disposal in mid-Aug. 1962, and *Seraph* and *Scotsman* in 1963. *Sirdar*, expended in experiments by the Naval Construction Research Establishment at Rosyth, was sold for scrap in 1965.
Transfers of "S" Class
Saga, *Spearhead* and *Spur* were sold to the Portuguese Navy in 1948 and renamed *Nautilo*, *Neptune* and *Narval*, respectively. *Satyr*, *Spiteful*, *Sportsman* (lost 23 Sep. 1962 under the French name *Sibylle*) and *Statesman* were transferred to the French Navy, Oct. 1951 to July 1952; but *Spiteful* (on loan under the name *Sirene*) was returned to the Royal Navy on 24 Oct. 1958 and towed from Portsmouth to be scrapped on 9 July 1963; *Statesman* (on loan under the name *Sultane*) was returned on 5 Nov. 1959 and scrapped

in 1960; and *Satyr* (on loan under the name *Saphir*) was returned in Aug. 1961 to await disposal at Rosyth in 1962. *Sanguine* and *Springer* were sold to Israel in Oct. 1958. *Springer* was handed over to the Israel Navy at Portsmouth on 9 Oct. and renamed *Tanin* (Crocodile) and delivered to Israel in Dec. 1959. *Sanguine*, renamed *Rahar*, was delivered to Israel in May 1960.
The following units were cancelled at the end of the Second World War: *Sea Robin*, *Sprightly*, *Surface*, *Surge*.
Second World War losses: *Sahib*, *Saracen*, *Sickle*, *Simoon*, *Stonehenge*, *Stratagem*, *Syrtis*, *Splendid*, P 222.
Disposals of Midget Type
The three "Midget" Type (X-craft), namely *Minnow* (X 54), *Shrimp* (X52) and *Sprat* (X53), were on the disposal list in 1961. *Sister Stickieback* (X 51) was sold to Sweden on 15 July 1958 and renamed *Spiggen* (Swedish equivalent of "*Stickieback*").



MEDWAY, Support Ship of 7th Submarine Division (see page 301), ANCHORITE, ALLIANCE, AMPHION (see next page)

1965, Official

Submarines—continued



AENEAS

1964, Official

14 "A" Class

2 Cammell Laird & Co. Ltd., Birkenhead	9 Vickers-Armstrongs Ltd., (Barrow-in-Furness)
AENEAS	ALCIDE
ALARIC	ALDERNEY
1 H.M. Dockyard, Chatham	ALLIANCE
ACHERON	AMBUSH
2 Scotts S.B. & Eng. Co. Ltd., Greenock	AMPHION (ex-Anchorite)
ARTEMIS	ANCHORITE (ex-Amphion)
ARTFUL	ANDREW
	ASTUTE
	AURIGA



ALLIANCE

1965, Wright & Logan

No.	Name	Laid down	Launched	Completed
S 61	Acheron	26 Aug. 44	25 Mar. 47	17 Apr. 48
S 72	Aeneas	10 Oct. 44	25 Oct. 45	31 July 46
S 41	Alaric	31 May 44	18 Feb. 46	11 Dec. 46
S 65	Alcide	2 Jan. 45	12 Apr. 45	18 Oct. 46
S 66	Alderney	6 Feb. 45	25 June 45	10 Dec. 45
S 67	Alliance	13 Mar. 45	28 July 45	14 May 47
S 68	Ambush	17 May 45	24 Sep. 45	22 July 47
S 43	Amphion	14 Nov. 43	31 Aug. 44	27 Mar. 45
S 64	Anchorite	19 July 45	22 Jan. 46	18 Nov. 47
S 63	Andrew	13 Aug. 45	6 Apr. 46	16 Mar. 48
S 49	Artemis	28 Feb. 44	26 Aug. 46	15 Aug. 47
S 96	Artful	8 June 44	22 May 47	23 Feb. 48
S 47	Astute	4 Apr. 44	30 Jan. 45	30 June 45
S 69	Auriga	7 June 44	29 Mar. 45	12 Jan. 46

Displacement: 1,120 tons standard, 1,385 tons surface, 1,620 tons submerged
Dimensions: 221 (pp.), 283 (o.a.) \times 22 $\frac{1}{2}$ \times 17 feet
Guns: Removed (see Gunnery)
Tubes: 6—21 inch (4 bow and 2 stern), all internal. 16 torpedoes carried (external torpedo tubes removed) see Torpedo notes
Machinery: 8 cyl. diesel B.H.P.: 4,300=19 kts. surface; Electric motors: H.P.: 1,250=8 kts. submerged
Oil fuel: 159 tons
Complement: 60 to 68 (5 officers, 63 ratings)

General
These submarines were originally designed for service in the Pacific, and had a different hull form from the "T" class. Construction was entirely welded. All have "Snort" breathing equipment. *Alliance* and *Ambush*, so fitted, remained submerged for record periods in 1947-48. On 15 June 1953, *Andrew* completed a 2,500 sea miles underwater voyage from Bermuda to the English Channel in 15 days, a record for "snorting" in the Royal Navy.

Gunnery
Some boats of this class had the 4-inch guns removed before reconstruction. Others mounted the 4-inch gun temporarily after reconstruction. *Alderney* and others are fitted with a mounting for a gun. *Aeneas* had a 4-inch gun mounted in Feb. 1960. *Artemis* mounted a 4-inch gun in 1960, after reconstruction. *Aurochs* was the only one in service in 1964 still mounting a gun before the bridge.

Conversion.
The "A" class were rebuilt and streamlined with an enclosed fin coming tower 26 $\frac{1}{2}$ feet high. *Artful* was the first to undergo reconstruction in 1955 followed by the remainder of this class except *Aurochs*, the only one not converted.

Torpedo Tubes
Originally mounted 10—21 inch (4 external) as designed, and carried 20 torpedoes (or 22 mines). External tubes (two bow and two stern) were removed.

Photographs
An aerial bow view of *Artful* appears in the 1958-59 and 1959-60 edition, a photograph of *Acheron* (before reconstruction) in the 1957-58 edition, of *Anchorite* (before reconstruction) in the 1957-58 and earlier editions, of *Artemis* (after reconstruction) without gun in the 1959-60 edition and with gun in the 1960-61 and 1961-62 editions, of *Alaric* (before reconstruction) in the 1958-59 to 1961-62 editions, of *Astute* (as converted) in the 1958-59 to 1962-63 editions, of *Artful* (after second reconstruction) in the 1959-60 to 1962-63 editions, of *Auriga* in the 1960-61 to 1962-63 editions, of *Alaric* (after reconstruction) in the 1962-63 edition, a port bow oblique aerial view of *Aeneas* in the 1963-64 edition and a photograph of *Aurochs* in the 1963-64 and 1964-65 editions.

Loss
Affray was lost in the English Channel on 17 Apr. 1951.



ACHERON

1964, Official



ALDERNEY

1963, Official



ARTEMIS (without gun)

1962, Wright & Logan

Pennant Notes
The pennant numbers of most of the "A" class submarines (and all "O" class submarines) were changed on 1 May 1961 (see Note at the head of the pennant list on page 312).

Disposal
Aurochs, the only one of the class not converted, was scheduled for disposal by scrapping in Sep. 1965.

Class
The following 30 units were cancelled, though some had actually been launched: *Abalard*, *Acasta*, *Ace*, *Achates*, *Adept*, *Admirable*, *Adversary*, *Agate*, *Aggressor*, *Agile*, *Aladdin*, *Alcestis*, *Andromache*, *Answer*, *Arcades*, *Antagonist*, *Anzac*, *Aphrodite*, *Approach*, *Arcadian*, *Argent*, *Argosy*, *Asgard*, *Asperity*, *Assurance*, *Astarte*, *Atlantis*, *Austere*, *Awake*, *Aztec*.



TOKEN

1964, Wright & Logan

8 "T" Class

1 H.M. Dockyard, Chatham	1 Scotts S.B. & Eng. Co. Ltd., Greenock
THERMOPYLAE	TABARD
1 H.M. Dockyard, Devonport	4 Vickers-Armstrongs Ltd., Barrow-in-Furness
TRUNCHEON	TACITURN
1 H.M. Dockyard, Portsmouth	TALENT (ex-Tasman)
TOKEN	TIPTOE
	TRUMP

Pen No.	Name	Laid down	Launched	Completed
S 42	Tabard	6 Sep. 44	21 Nov. 45	25 June 46
S 34	Taciturn	9 Mar. 43	7 June 44	7 Oct. 44
S 37	Talent	21 Mar. 44	13 Feb. 45	26 July 45
S 55	Thermopylae	26 Oct. 43	27 June 45	5 Dec. 45
S 32	Tiptoe	10 Nov. 42	25 Feb. 44	13 June 44
S 28	Token	6 Nov. 41	19 Mar. 43	15 Dec. 45
S 33	Trump	31 Dec. 42	25 Mar. 44	9 July 44
S 53	Truncheon	5 Nov. 42	22 Feb. 44	25 May 45

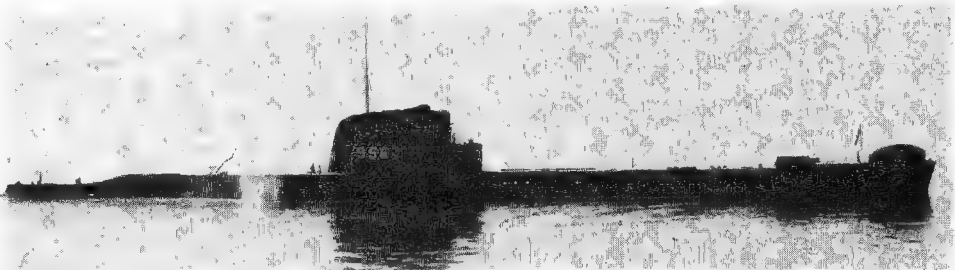
Displacement:	Talent, Token: 1,090 tons standard, 1,231 tons surface, 1,571 tons submerged Taciturn, Thermopylae: 1,280 tons standard, 1,505 tons surface, 1,700 tons submerged Tabard, Tiptoe, Trump, Truncheon, 1,310 tons standard, 1,535 tons surface, 1,740 tons submerged
Dimensions:	Talent, Token: 265 (pp.), 273½ (o.a.)×26½×14½ feet; Thermopylae: 285½ (o.a.); Taciturn: 287½ (o.a.); Tabard, Tiptoe, Trump, Truncheon: 293½ (o.a.)
Guns:	Removed. Originally carried 1—4 inch (see Reconstruction)
Tubes:	6—21 inch (4 bow and 2 stern). 20 homing torpedoes carried (see Torpedo notes)
Machinery:	Diesels: B.H.P.: 2,500=15.25 kts. surface (all boats) Electric motors: 2 in Talent, Token, H.P.: 1,450=9 kts. submerged; 4 in converted boats, H.P.: 2,900=15 to 18 kts. submerged
Oil fuel:	132 tons in Talent, Token 250 tons in converted boats
Complement:	59 to 65 (6 officers, 59 ratings)

General
Officially described originally as "Patrol" type submarines for general service. Of saddle-tank design, they originally had an endurance equal to a 42-day patrol. All were subsequently fitted with "Snort" equipment. Eight of the surviving boats of this class were fully converted and rebuilt into the most advanced operational submarines. From them were developed the new "Porpoise" and "Oberon" classes.

Reconstruction
Rebuilding of the eight boats of the "conversion" type in 1951-56 was drastic. The pressure hull was severed at the engine-room section, the two halves moved apart and a new section built in. The extra space accommodated a second pair of electric motors, clutches between which and the original motors made diesel-electric drive possible, and a fourth battery section was added to give a submerged speed of 15 knots. All guns and external torpedo tubes were removed. Improved periscopes, asdic and radar were installed with a periscopic snort mast. Tabard and Trump had the bridge built into the huge fin, which housed two periscopes, two radar masts, two snort masts, and an aerial. In the other six the bridge was reduced to a tiny cramped cab before the fin.

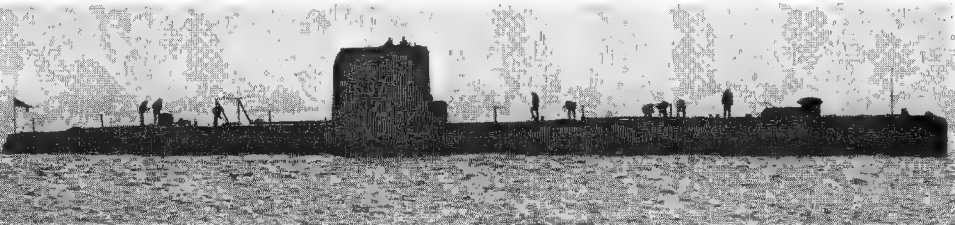
Alteration of the five boats of the "modernised" type in 1955-60 was less radical. They were streamlined with the formerly prominent periscope standards and aerials enclosed in a coming tower "fin" or "sail" which also contained the bridge. All guns and external torpedo tubes and all possible obstructions were removed, and the resulting streamlining improved their speed without an increase in engine power. They were also much more silent under water and could use their improved asdics with enhanced efficiency. For specific operations a gun could be quickly inserted in this class.

There is a considerable difference between the super "T" class "Conversions" (Tabard, Tiptoe, Trump, Truncheon) which have welded pressure hulls and had an



THERMOPYLAE

1965, A. & J. Pavia



TALENT

1965, Giorgio Arra



TIPTOE

1963, Captain Aldo Fraccaroli



TRUMP

1963, Wright & Logan

additional section of about 20 feet built into them (Taciturn was lengthened by 14 feet, and Thermopylae, by 12 feet), and the "T" class "Streamlines" (Talent, Token) which are riveted hulled boats and therefore did not undergo the full conversion. Underwater speed of Thermopylae conversion types (after reconstruction, streamlined hull, more motors, greater batteries) is 15 knots and Taciturn is reported to have developed more than twice her previous maximum underwater speed.

Torpedo Tubes
Originally mounted 11—21 inch (3 external) as designed. External tubes removed.

Appearance
Talent and Token were modernised and streamlined. Tabard, Taciturn, Thermopylae, Tiptoe, Trump and Truncheon were rebuilt. Talent, as well as being streamlined, had a gun (old 4 inch remodelled) with no shield, now removed.

The appearance of submarines, with or without guns, etc., is liable to change frequently and quickly according to operational and experimental requirements.

Photographs
Photographs appear of Tabard in the 1961-62 and 1962-63 editions, and of Truncheon in the 1963-64 edition.

Second World War losses:
Talisman, Tempest, Thorn, Thunderbolt, (ex-Thetis), Tigals, Tarpan, Traveller, Trooper, Tetrach, Thistle, Triad, Triton, Triumph, Turbulent, P 31. Cancelled: Talent (1) (P 343), Theban, Thor, Threat, Tiara.

Transfers
Talent (renamed Zwaardvis) and Tarn (renamed Tijgerhaal) were transferred to the Royal Netherlands Navy. Two lent to the Royal Netherlands Navy in June 1948 were returned to the Royal Navy in 1953, Tapir (Netherlands name Zeehond) on July 16 and Taurus (Netherlands name Dolfijn) on Dec. 8. Totem and Turpin (converted boats) were transferred to the Israeli Navy in 1965 and renamed Dakar (Shark) and Leviathan, respectively.

Class
Talent was swept out of dry dock in H.M. Dockyard, Chatham, on 15 Dec. 1954 when a caisson collapsed; she was subsequently streamlined with an enclosed conning tower fin which was damaged in collision, while submerged off the Isle of Wight, with an unknown merchant ship, on 8 May 1956.

Disposals
Truculent sank after collision in the Thames Estuary on 12 Jan. 1950. was salvaged on 14 Mar., but was scrapped on 5 Apr. 1950. Tantalus, Tantiy and Templar were discarded in 1950. Tradewind was scrapped in 1956. Taurus and Thorough were approved to be scrapped in 1958 when they awaited tow to the shipbreakers or disposal otherwise as targets. Telemachus was scrapped in 1960 and Trespasser was de-equipped for scrapping in 1961. Thule (damaged in collision in 1960) was for disposal in 1962. Tactician, Trenchant and Tudor were awaiting disposal in 1963. Tally Ho (latterly harbour training), Tapir and Tireless ("Streamlines") were on the disposal list in 1964. Teredo ("Streamline") was sold for scrap in 1965.

MINESWEEPER SUPPORT SHIP (Ex-Fast Minelayer)



MANXMAN (after conversion)

1963, Wright & Logan

I "Manxman" Class

MANXMAN

Pennant No.: N 70
Builders and
Engineers: Alex. Stephen & Sons Ltd.,
Govan, Glasgow
Laid down: 24 Mar. 1939
Launched: 5 Sep. 1940
Completed: 20 June 1941
Converted: 1960-1963

General

Built under the 1938 Estimates. Torpedoed by an enemy submarine and badly damaged in Nov. 1942. Recommissioned after conversion on 23 Feb. 1963. The fast minelayers *Abdiel*, *Latona*, and *Weishman*, of this class were lost during the Second World War.

Displacement: 3,000 tons standard (4,000 tons full load)
Dimensions: 400½ (pp.), 418 (o.a.)×40×16 (max.) feet
Guns: 6—40 mm. Bofors AA. (1 twin, 4 single)
Mines: Much reduced from original 156 capacity
Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 36,000=26 kts.
Boilers: 2 Admiralty 3-drum type
Oil fuel: 750 tons
Radius: 2,000 miles at 20 kts.
Complement: 238 (11 officers, 227 ratings)
Conversion
Converted into a Minesweeper Support Ship at H.M.

Dockyard, Chatham, at a cost of £1,000,000 to serve as parent ship for eight coastal minesweepers East of Suez. Her four 4-inch guns forward were suppressed; and two boilers forward were removed for the installation of additional generators and evaporators, her S.H.P. being halved; but her forward funnel was retained for use as a ventilator and for diesel exhaust trunking. Part of the mining flat was altered to take stores and spare mine-sweeping equipment. The stern mining doors are used for the exchange of sweeping gear.

Photograph

A port broadside view of *Manxman* before conversion appears in the 1961-62 and 1962-63 editions.

Disposals

Of two sister fast minelayers *Apollo* was scrapped in 1962 and *Ariadne* in 1963.

ICE PATROL SHIP (Ex-Netlayer)

PROTECTOR

Pennant No.: A 146
Builders: Yarrow & Co. Ltd., Scotstoun
Laid down: 15 Aug. 1935
Launched: 20 Aug. 1936
Completed: 31 Dec. 1936
Converted: 10 May 1955 (see Conversion)

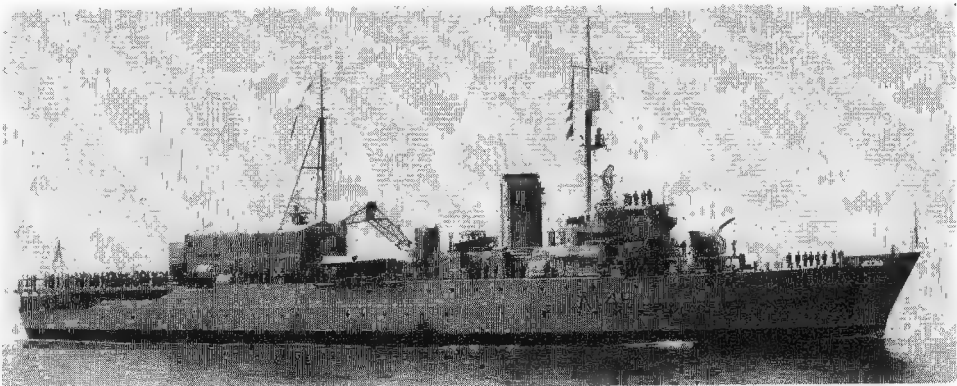
Displacement: 3,450 tons standard (4,250 tons full load)
Dimensions: 310 (pp.), 338 (o.a.)×53×15½ (mean load) feet
Guns: 2—4 inch (twin mount), 4—20 mm. Oerlikon AA., 4—3 pdr. saluting
Aircraft: 2 helicopters
Machinery: British Thomson-Houston geared turbines. S.H.P.: 9,000=20 kts.
Boilers: 2 Admiralty 3-drum type
Oil fuel: 690 tons
Complement: 238

General

Originally designed for netlaying and target towing. Ordered under the 1934 Estimates. The designed displacement was 2,860 tons standard, since increased.

Conversion

Refitted in 1955 for service in the Falkland Islands Dependencies with helicopter hangar, landing deck aft, enclosed bridge and enclosed look-out. The 4-inch guns



PROTECTOR

1965, Wright & Logan

were mounted forward instead of aft and 4—20 mm. were suppressed. Strengthened against ice. Employed in lieu of a frigate, as a guardship and Antarctic survey ship. Refitted in 1957 with remodelled bridge, etc. Refitted in 1958 with small tripod mainmast stepped on

the hangar, and crane amidships, etc. Officially reclassified as Ice Patrol Ship in 1959. Refit annually since.

Disposals

Protector's original sister ship, the netlayer *Guardian* was disposed of in 1962.

LANDING SHIP HEADQUARTERS (Ex-Frigate)

I "River" Class

MEON

Pennant No.: L 369 (ex-F 269)
Builders: A. & J. Inglis, Ltd., Glasgow
Laid down: 31 Dec. 1942
Launched: 4 Aug. 1943
Completed: 31 Dec. 1943

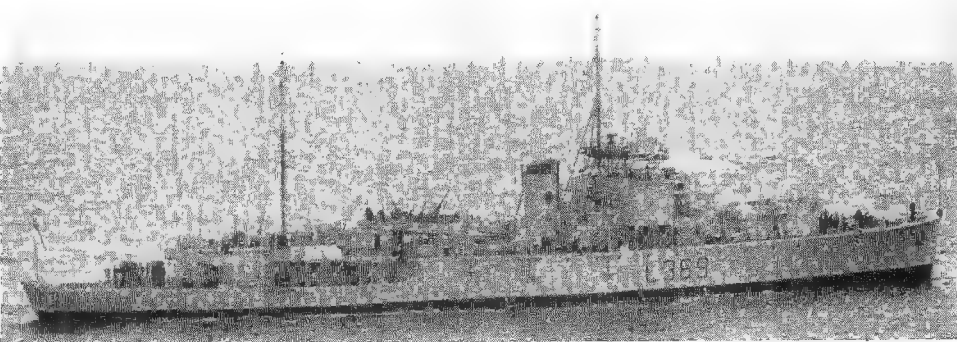
Displacement: 1,370 tons standard (2,200 tons full load)
Dimensions: 283 (pp.), 295 (w.l.), 301½ (o.a.)×36½×13 feet
Guns: 2—40 mm., 4—20 mm.
Machinery: Triple expansion. 2 shafts. I.H.P.: 5,500=20 kts. (sea speed 18 kts.)
Boilers: 2 Admiralty 3-drum type
Oil fuel: 640 tons
Radius: 9,500 miles at 12 kts.
Complement: 124 (varies)

General

Originally a "River" Class frigate. Converted into a Landing Ship Headquarters (Small). Pennant No. changed from F 269 to L 369 in 1958 when the forward 40 mm. gun was removed. Paid off in July 1965 and scheduled for disposal in due course.

Disposals

Sister ship *Waveney*, F 248, was scrapped in 1958.



MEON

1961, A. & J. Pavia

"Castle" Class:—*Amberley Castle*, *Pevensey Castle* and *Rushen Castle* were sold to the Air Ministry as Weather Ships. *Dumbarton Castle*, *Farnham Castle*, *Lancaster Castle*, *Morpeth Castle* and *Oxford Castle* were scrapped in 1961.

"River" Class:—*Ballinderry* was scrapped in 1961, and *Derg* in 1963.

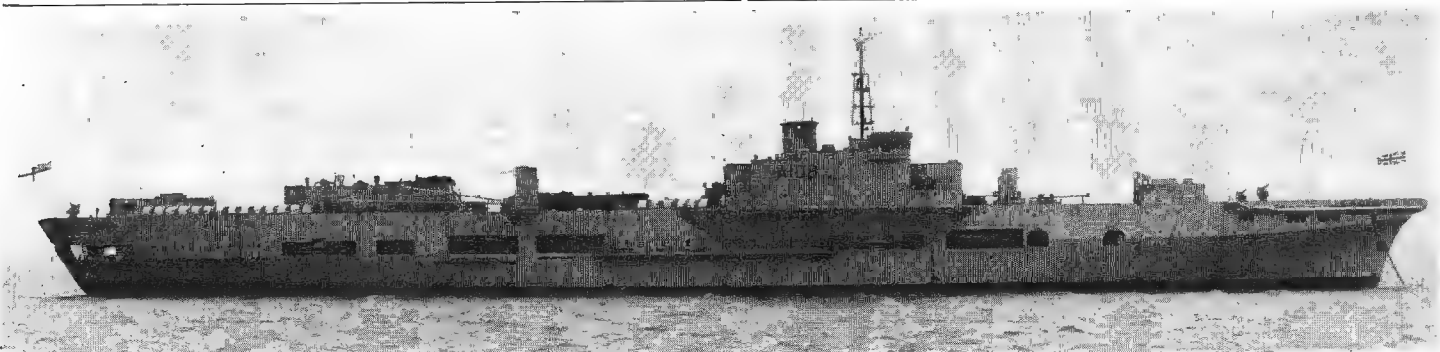
"Hunt" Group:—*Brecon* Class (Type IV): *Brecon*

and *Brissenden* were scrapped in 1962. "*Albrighton*" Class (Type III); *Talybont* was scrapped in 1961. "*Blankney*" Class (Type II); *Wilton* was scrapped in 1960, and *Farndale* in 1961.

Modified "*Aberdeen*" Class:—*Fleetwood* was scrapped in 1959.

Detailed disposals of all ships of these classes since the Second World War, appear in the 1959-60 edition.

HEAVY REPAIR SHIP



TRIUMPH (after conversion)
I "Colossus" Class
(Former Aircraft Carrier)

1965, Official

TRIUMPH

Pennant No. A 108 (ex-R 16)
Builders: R. & W. Hawthorn, Leslie & Co. Ltd., Hebburn-on-Tyne
Laid down: 27 Jan. 1943
Launched: 2 Oct. 1944
Completed: 9 Apr. 1946
Converted: H.M. Dockyard, Portsmouth, 1 Jan. 1958 to 7 Jan. 1965

Displacement: 13,350 tons standard (17,000 tons full load) after conversion
Dimensions: Length: 630 (pp.), 699 (o.a.), feet. Beam: 80 feet. Width: 112½ (o.a.) feet. Draught: 23½ (max.) feet. Flight deck: 690 feet long, 80 feet wide, 39 feet above water line. Former hangar: Length: 445 feet. Width: 52 feet. Depth: 17½ feet

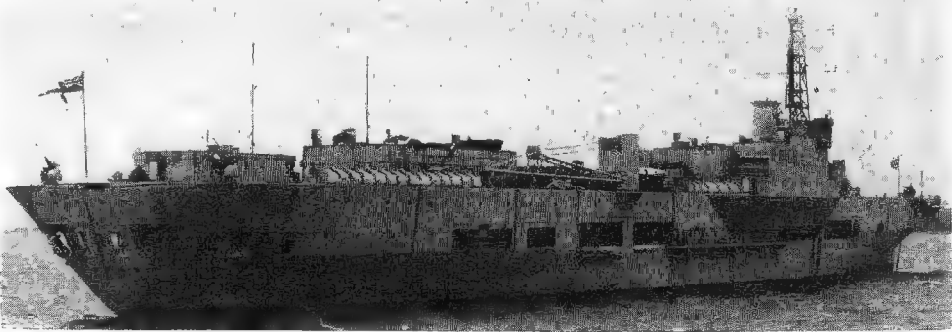
Aircraft: 3 helicopters in new flight deck hangar
Guns: 4—40 mm. AA., 3 saluting
Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 40,000—24.25 kts.
Boilers: 4 Admiralty 3-drum type (400 lb. working pressure, 700 degrees maximum superheat)
Oil fuel: 3,000 tons
Radius: 12,000 miles at 14 kts.
Complement: Ship's company: 500 (27 officers, 473 ratings) plus Maintenance staff: 285 (15 officers, 270 ratings)

General

Insulated for tropical service and partially air-conditioned. When she was still an aircraft carrier her accommodation was modified in 1953 to fit her for employment as officer cadets' training ship, but she was converted into a heavy repair ship under the 1956-57 Estimates, and her sponsons removed. Commissioned for service after conversion on 7 Jan. 1965. Sailed for Portsmouth on 1 Feb. 1965 for the Far East where she is employed as an escort maintenance ship.

Conversion

Her reconstruction spans a period of seven years, but the work actually took less time as her conversion was suspended for about 2½ years while dockyard commitments of higher priority were met. Although intended for heavy repair the special machinery in the comprehensive workshops for this in the former



TRIUMPH (after conversion)

1965, Official

hangar is placed in a state of preservation and her main role is escort maintenance, but she has space and facilities to undertake a variety of tasks including the carrying and maintenance of helicopters. She can take four destroyers and frigates alongside, two on each beam. Cost of conversion: £10,200,000, including capital expenditure on the heavy repair plant carried and dockyard and expenses over a protracted period.

Construction

As an aircraft carrier the flight deck was strengthened to take aircraft of over 8 tons in weight. Sponsons could be dismantled to the extent of 3½ feet on either side if necessary to allow for passage through Panama Canal. Mercantile type hull. Built to Lloyd's specifications up to main deck with the original intention of converting to commercial service after the war. Damage control: No great measure of vertical sub-division on the sandwich system as it was reckoned that it is better for ships to settle evenly in the event of damage and flooding than to foster capsizing.

Engineering

Engines and boilers are arranged en echelon, one set of turbines and two boilers being installed side by side in each of the two main propelling machinery spaces, on the unit system, so that the starboard propeller shaft is longer than the port shaft. The maximum designed speed was 25 knots, at 225 revolutions per minute. The economical speed is 15 knots at 120 revolutions per minute.

Appearance

Distinguished from aircraft carriers by generally lighter appearance, thin funnel, distinctive shape of ship's side forward, absence of sponsons, and block deckhouses on the former flight deck

Class

Of her original sister aircraft carriers, the Venerable

(renamed *Karel Doorman*) was sold to the Royal Netherlands Navy in 1948; *Colossus* (renamed *Arramanches*) was sold to the French Navy in 1951; and two were completed as maintenance aircraft carriers, *Perseus* (scrapped in 1958) and *Pioneer* (scrapped in 1954). *Vengeance* was lent to the Royal Australian Navy early in 1953, but was returned to the Royal Navy in August 1955, and sold to the Brazilian Navy in 1956 (announced by Admiralty on 14 Dec.); she was modernised in 1957-1960 and commissioned in 1961 under the name *Minas Gerais*. *Warrior* was sold to the Argentine Navy in July 1958 and commissioned under the name *Independencia* in Jan. 1959.

Photographs

A photograph of *Triumph* before conversion appears in the 1958-59 and 1959-60 editions, and an interim photograph during conversion in the 1960-61 to 1964-65 editions.

Disposals

Of *Triumph's* sister ships, *Glory* was broken up in 1961, and *Ocean* and *Theseus* in 1962.

Half-sister *Perseus*, also *Unicorn*, were scrapped in 1958-59. (*Unicorn* arrived at Dalmuir on 15 June, 1959).

Disposals of "A" Class

Of the three "A" class heavy repair ships, converted from Cunard liners, *Ausonia* was scheduled for disposal by scrapping in 1965, *Artifex* (ex-*Aurania*) was scrapped at La Spezia in 1961, and *Alaunia* was scrapped in Sep. 1957.

Disposal of "R" Class

The heavy repair ship *Ranpura*, former P. & O. liner, was approved to be scrapped in 1960, and was sold to Italian interests in Apr. 1961 for breaking up.

DESTROYER DEPOT SHIP



TYNE

I "Tyne" Class

TYNE

Pennant No.: A 194
Builders: Scotts' S.B. & Eng. Co. Ltd., Greenock
Laid down: 15 July 1938
Launched: 28 Feb. 1940
Completed: 28 Feb. 1941

Displacement: 11,000 tons standard (14,600 tons full load)
Dimensions: 585 (pp.), 613 (w.l.), 621 (o.a.)×66×20½ feet
Guns: 8—4.5 inch, 7—40 mm. AA.

Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 7,500—17 kts.
Boilers: 4, of 3-drum type
Oil fuel: 1,400 tons
Complement: 520 (normal) as destroyer depot ship, 820 as flagship. Accommodation allows for 1,000.

General

Built under the 1937 Estimates. Equipment includes two furnaces, each capable of melting 500 lb. of metal at any temperature up to 1,500 degrees centigrade; a foundry and machine shops with milling and grinding machines. Refitted from late 1956 to early 1958 with enclosed lower bridge and improved operations room

Added 1962, courtesy Godfrey H. Walker, Esq.

and internal arrangements, etc., seven 40 mm. guns replacing former smaller anti-aircraft guns. Was flagship of Home Fleet from Autumn 1954 to August 1956, and again from April 1958 to 1960. Also parent ship of the 2nd Submarine Squadron in 1960, and Flagship of the Flag Officer, Flotillas, Home Fleet, until Apr. 1961, when she became accommodation ship for Fleet Maintenance Units personnel at Portsmouth, from whence she was towed to Devonport on 18 July 1961 and placed in reserve and used as a living ship.

Disposal

The destroyer depot ship *Woolwich* was scrapped at Dalmuir in Oct. 1962.

SUBMARINE DEPOT SHIPS



ADAMANT

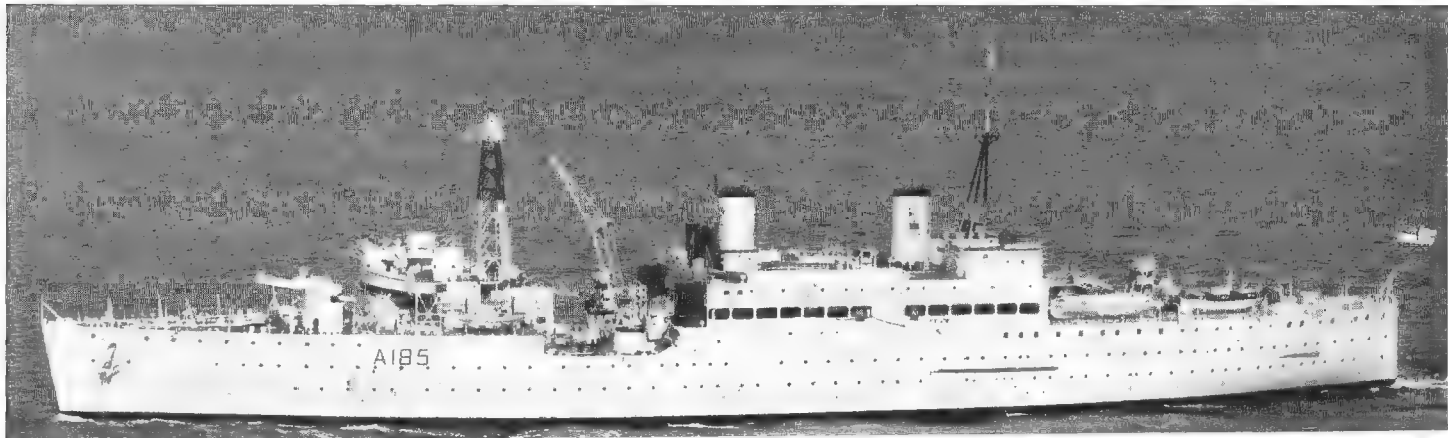
1963, Wright & Logan

I "Adamant" Class

ADAMANT	
Pennant No.:	A 164
Builders:	Harland & Wolff, Ltd., Belfast
Laid down:	18 May 1939
Launched:	30 Nov. 1940
Completed:	28 Feb. 1942
Displacement:	12,700 tons standard (16,500 tons full load)

Dimensions:	620 (pp.), 646 (w.l.), 658 (o.a.) \times 70 $\frac{1}{2}$ \times 20 (mean), 21 $\frac{1}{2}$ (load) feet
Guns:	12—40 mm. AA. (2 quadruple, 2 twin); 4—3 pdr. saluting
Machinery:	Parsons geared turbines, 2 shafts. S.H.P.: 8,000=17 kts. 4, of 3-drum type
Boilers:	2,600 tons
Oil fuel	Complement:
750 (ship's company, repair staff)	

General
Ordered under the 1938 Estimates. Equipment includes a foundry, fitters', patternmakers', coppersmiths', and shipwrights' shops; light and heavy machine shops; torpedo and electrical shops; and submarine repair facilities of all kinds. When originally built she had facilities for nine submarines and accommodation for their complements. She has total accommodation for 800 officers and men of the ship and 550 from the submarines. Her eight 4.5 inch guns have been removed.



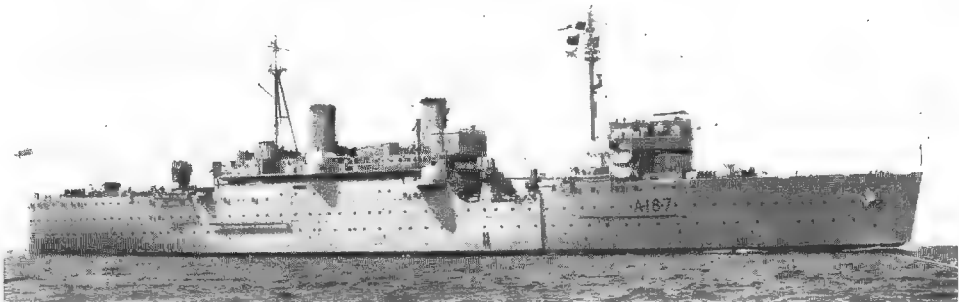
MAIDSTONE (after reconstruction as nuclear submarine support ship)

1963, Official

Nuclear Powered Submarine Support Ships

2 "Maidstone" Class

Name:	FORTH	MAIDSTONE
Pennant No.:	A 187	A 185
Builders:	John Brown & Co. Ltd., Clydebank	John Brown & Co. Ltd., Clydebank
Laid down:	30 June 1937	17 Aug. 1936
Launched:	11 Aug. 1938	21 Oct. 1937
Completed:	14 May 1939	5 May 1938
Reconstructed:	1962-1966	1958-1962
Displacement:	Forth: 9,100 tons standard (12,700 tons full load) Maidstone: 9,000 tons standard (12,380 tons full load) as originally built; 10,000 tons standard (14,000 tons full load) as converted	
Dimensions:	497 (pp.), 530 $\frac{1}{2}$, Forth 531 (o.a.) \times 73 \times 21 $\frac{1}{2}$ feet	
Guns:	Forth: 8—4.5 inch, 2 multiple pompoms, 4—3 pdr., 4 smaller Maidstone: 5—40 mm. AA. Bofors (see Gunnery)	
Machinery:	Forth: Brown-Curtis geared turbines, 2 shafts. S.H.P.: 7,000=16 kts. Maidstone: Parsons geared turbines, 2 shafts. S.H.P.: 7,000=16 kts. (max.)	
Boilers:	4 Admiralty 3-drum type	
Oil fuel	2,300 tons	
Complement:	Forth: 502 (including 64 repair staff and 43 as spare submarine crew) Maidstone has accommodation for 1,159 (119 officers and 1,040 men) normal and over 1,500 maximum	



FORTH

Added 1963, Wright & Logan

General
Parent Ships for Submarines. Maidstone was ordered on 17 Aug. 1936 under the 1935 Estimates. She originally cost £993,000. Forth was laid down under the 1937 Estimates. Equipment includes a foundry, coppersmiths', plumbers' and carpenters' shops; heavy and light machine shops; electrical and torpedo repair shop; and plant for charging submarine batteries. Designed for looking after nine operational submarines, and capable of supplying over 140 torpedoes and a similar number of mines when required. Besides large workshops there are repair facilities on board for all material in the attached submarines, and extensive diving and salvage equipment is carried. There are steam laundry, cinema, hospital, chapel, two canteens, bakery, barber shops, fully equipped operating theatre and dental surgery. Maidstone was the Flagship of the Commander-in-Chief Home Fleet from 16 Aug. 1956 until 31 Mar. 1958.

Reconstruction
Maidstone was extensively reconstructed in H.M. Dockyard, Portsmouth in 1958-62 as a nuclear-powered submarine support ship, with a lattice foremast and additional superstructure amidships.

Forth is being similarly modernised and converted

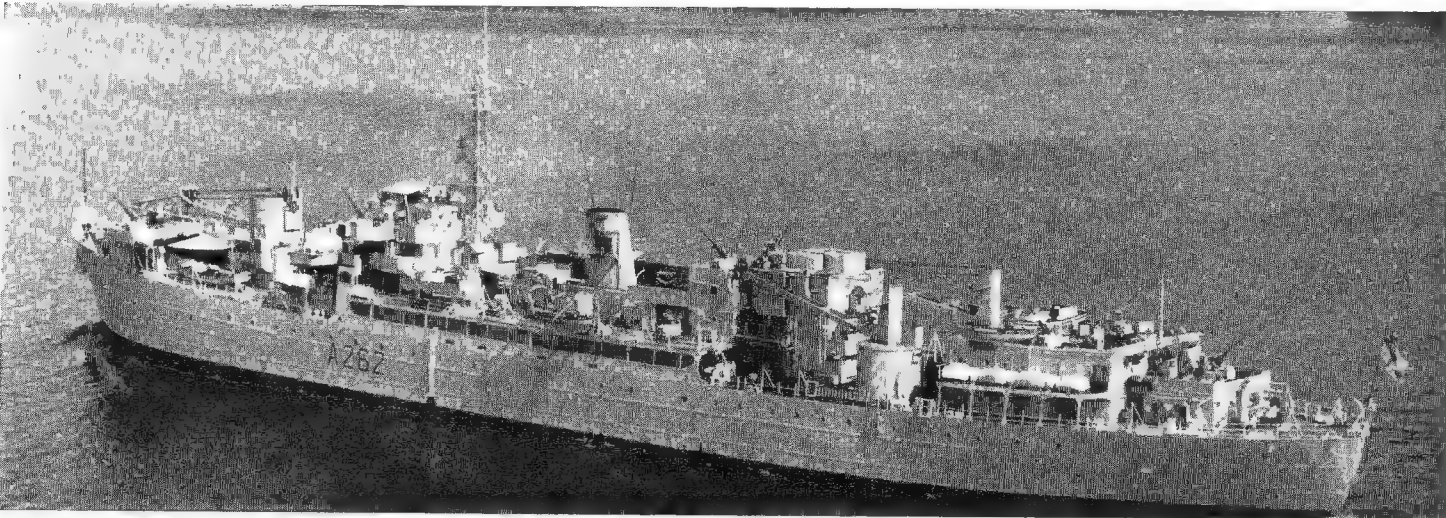
into a nuclear-powered submarine support ship in H.M. Dockyard, Chatham, beginning in 1962.

Nuclear Support
The conversion and modernisation of Maidstone included refitting for acting as parent ship for the nuclear-powered submarine Dreadnought.

Gunnery
As originally designed both ships mounted eight 4.5 inch guns in four twin housings, one forward, one aft, and one sponsoned on either beam between the funnels. Maidstone had her 4.5 inch guns removed during her 1958-62 conversion into a nuclear support ship. She also formerly had a light AA. gun in bows, and she carried a 4-inch gun on a submarine pattern mounting, for training purposes only, on the starboard side just aft of the midships 4.5 inch turret.

Photographs
A starboard bow surface view of Maidstone before reconstruction appears in the 1960-61 and 1961-62 editions, and a larger port view, in the 1957-58 to 1959-60 editions. A port bow view after reconstruction appears in the 1962-63 edition. A starboard broadside view of Forth before reconstruction appears in the 1960-61 to 1962-63 editions.

MAINTENANCE SHIPS



HARTLAND POINT
I "Point" Class

1963, Official

HARTLAND POINT

Pennant No.: A 262
Builders: Burrard Dry Dock Co. Ltd.,
North Vancouver, B.C.
Ordered: 1 May 1944
Laid down: 18 July 1944
Launched: 4 Nov. 1944
Completed: 11 July 1945

Displacement: 8,580 tons standard (10,200 tons full load)
Dimensions: 416 (pp.), 441½ (o.a.)×57½×21 feet
Guns: 11—40 mm. AA.
Machinery: Triple expansion 250 lb./sq. in., 600 deg. F. 76 r.p.m. I.H.P. 2,500=10 kts.
Oil fuel: 1,000 tons
Complement: 445 (25 officers and 420 ratings)

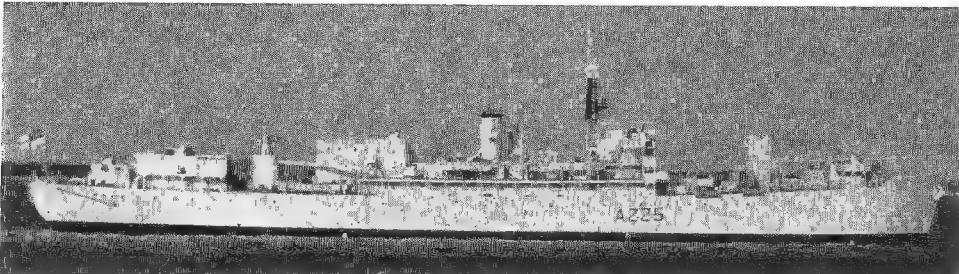
General
Former Landing Ship Maintenance. Extensively refitted externally and internally and modernised as an Escort Maintenance Ship in 1959-60, with lattice foremast, modified bridge, novel short funnel, additional deckhouses, modern cranes, and new armament, messing arrangements and air conditioning. Her task was the maintenance of destroyers and frigates in the Far East which she carried out at any port required or where the fleet was concentrated. Returned to United Kingdom in May 1965. Sister ship *Dodman Point* was disposed of in 1962

I "Mull" Class
MULL OF KINTYRE

Pennant No.: A 225
Builders: North Vancouver Ship Repairs Ltd.
Laid down: 21 Dec. 1944
Launched: 5 Nov. 1945
Completed: 5 Apr. 1945

Displacement: 8,500 tons standard (10,200 tons full load)
Dimensions: 416 (pp.), 441½ (o.a.) ×57½×20½ feet
Guns: 11—40 mm. AA.
Machinery: Triple expansion, I.H.P.: 2,500 =10 kts.
Oil fuel: 1,000 tons

General
Originally an Armament Maintenance Ship, and subsequently a Repair and Accommodation Ship. Converted into a minesweeper Maintenance Ship (conversion com-



MULL OF KINTYRE

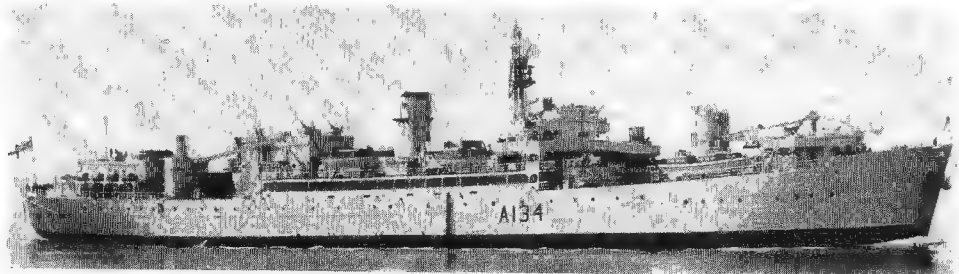
1962, Official

pleted in Aug. 1961). Based at Singapore in Oct. 1961. Her original sister ship *Mull of Galloway* (ex-Kinnard Head) was scrapped in 1965. (towed from Portsmouth on 16 Feb. and broken up at Hamburg). All these maintenance ships have over 2,000 tons of permanent ballast for stability and immersion purposes.

3 "Head" Class

Displacement: 9,000 tons standard (11,270 tons full load)
Dimensions: 416 (pp.), 441½ (o.a.)×57½×22½ feet
Guns: 11—40 mm. AA. (*Berry Head* and *Rame Head*)
Machinery: Triple expansion, I.H.P.: 2,500 =10 kts.
Boilers: 2 Foster-Wheeler
Oil fuel: 1,600 tons

General
Escort Maintenance Ships. *Berry Head* (see photograph in the 1953-54 to 1961-62 editions) and *Rame Head* were refitted and modernised in 1960-63. *Duncansby Head* (see photograph in the 1962-63 edition) on 1 Dec. 1962 became "half" of H.M.S. *Cochrane* (Senior Officer Reserve Ships, Rosyth) as a living ship jointly with *Girdleness* (see below). In 1963 *Rame Head* became a living ship (Senior Officer Reserve Ships, Portsmouth). *Beachy Head* and *Flamborough Head* of this class belong to the Royal Canadian Navy, having been acquired in 1952 and 1951, respectively, and renamed *Cape Scott* and *Cape Breton*.



RAME HEAD

1963, Wright & Logan

Name	No.	Builders	Laid down	Launched	Completed
BERRY HEAD	A 191	North Vancouver Ship Repairs	15 June 1944	21 Oct. 1944	30 May 1945
DUNCANSBY HEAD	A 158	Burrard Dry Dock, N. Vancouver	29 July 1944	17 Nov. 1944	8 Aug. 1945
RAME HEAD	A 134	Burrard Dry Dock, N. Vancouver	12 July 1944	22 Nov. 1944	18 Aug. 1945

I Converted "Ness" Class

Pennant No.: A 387
Builders: Burrard Dry Dock Co. Ltd.,
North Vancouver, B.C.
Laid down: 7 Dec. 1944
Launched: 29 Mar. 1945
Completed: 5 Sep. 1945
Converted: 24 July 1956 (see General)
Displacement: 10,000 tons standard (11,620 tons full load) as converted
Dimensions: 416 (pp.), 441½ (o.a.)×57½×22 feet
Machinery: Triple expansion, 1 shaft, I.H.P.: 2,500 -10 kts.

General
Former Landing Craft Maintenance Ship converted to a guided weapons trials ship in H.M. Dockyard, Devonport Oct. 1953—July 1956, mounting a triple launcher for "Seaslug" missiles forward, and accommodating 616 officers and ratings. For particulars of guided weapon installation see 1961-62 edition. Paid off as guided missiles trials ship on 5 Dec. 1961. Reclassified as an



GIRDLE NESS

Giorgio Arro

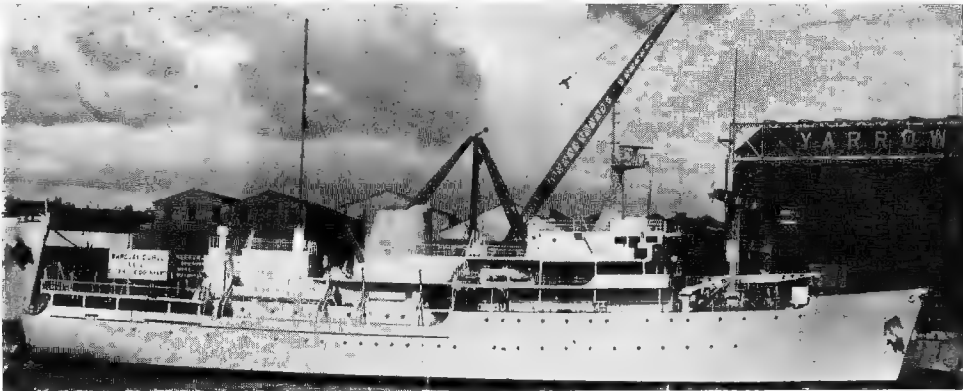
accommodation ship in 1962, and with *Duncansby Head* (see above) recommissioned at H.M. Dockyard, Rosyth, on 1 Dec. 1962 under the joint administration name of H.M.S. *Cochrane* to take over the functions of the naval barracks and base supply depot at Donibristle. Her original sister ship *Buchan Ness* was scrapped in 1960.

SURVEY SHIPS

New Construction
3 "Hecla" Class

HECATE	HECLA	HYDRA
Displacement:	2,800 tons (official figure)	
Dimensions:	260 (o.a.)×49×15 feet	
Aircraft:	1 Wasp helicopter	
Machinery:	Diesel-electric, 1 shaft, Bow thruster, 2 Davey Paxman Ventura 12-cyl. turbo-charged V- form diesels, 1 electric motor, S.H.P.: 2,000=14 kts.	
Radius:	12,000 miles	
Complement:	117 (19 officers and scientists, 98 ratings)	

General
New dual purpose deep ocean survey ships for the Royal Navy. The first to be designed with a combined oceanographical and hydrographical role, and the first to be built on commercial lines without a supplementary naval function. Of merchant ship design and similar in many respects to the Royal Research ship *Discovery*, they have range and endurance to fit them for their specialised work. The hull is strengthened for navigation in ice, and a propeller built into a transverse tunnel in the bow for good manoeuvrability. The fore end of the superstructure incorporates a Landrover garage and the after end a helicopter hangar with adjacent flight deck. Equipped with chartroom, drawing



HECLA (just before completion)

8 Aug. 1965.

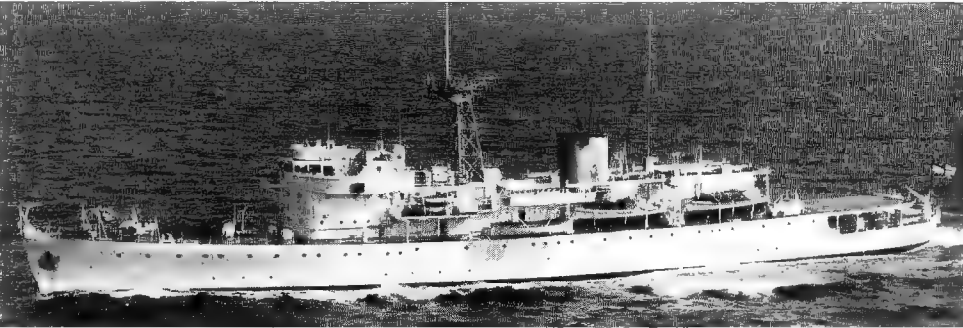
office and photographic studio; two laboratories, dry and wet; electrical, engineering and shipwright workshops, and large storerooms. Capable of operating independently of shore support for long periods. High standard of habitability, with library, canteen, laundry, cinema, and hospital. Air conditioned throughout. Ordered from Yarrow & Co. Ltd., Scotstoun, in Feb. 1964 (Blyths-

wood Shipbuilding Co. Ltd., Glasgow, collaborating on two of the three hulls). *Hecla* was laid down at the Blythswood yard on 6 May 1964, launched on 21 Dec. 1964 and completed on 24 Aug. 1965. *Hecate* was laid down on 23 Oct. 1964 and launched on 31 Mar. 1965, *Hydra* was laid down on 14 Aug. 1964 and launched on 14 July 1965.

VIDAL

Pennant No.:	A 200
Builders:	H.M. Dockyard, Chatham
Laid down:	5 July 1950
Launched:	31 July 1951
Completed:	29 Mar. 1954
Displacement:	1,940 tons standard (2,200 tons full load)
Dimensions:	297 (pp.), 315 (o.a.)×40×11 (forward), 13 (aft) feet
Guns:	4—3 pdr. saluting
U.W. weapons:	Depth charges
Aircraft:	1 helicopter
Machinery:	4 diesels, 2 shafts, B.H.P.: 4,200 —15 kts. (see <i>Engineering</i>)
Complement:	164 (14 officers, 150 ratings)

General
Design figures for displacement were 1,565 tons standard and 1,885 tons load, but in fact she turned out heavier. Designed by the Royal Navy from the start for hydrographic surveying and chart production. First surveying ship to be equipped with helicopter flight deck and hangar, designed to enable a helicopter to land on and fly off for air surveying photography and transport of personnel to shore observation stations. Air conditioning plant is installed to meet equatorial and polar climatic conditions. Ship carries three surveying motor launches equipped with echo sounding apparatus. First British naval vessel to be built equipped from the beginning for cafeteria messing. Cost £1,345,000. Refitted with enclosed bridge in 1961, but bridge wings left open. Again refitted in 1962.



VIDAL

1964, Skyfotos

Electrical

The latest electronic aids to surveying and navigation are incorporated. Electrical power is provided from 360 kw. 220 volt direct current diesel generating sets.

Helicopter Operation

The after end of the forecabin deck extension is a landing apron for the helicopter, which is housed in the after deck house hangar on the same level.

Engineering

The main propelling machinery was designed in H.M. Dockyard, Chatham. The four ASR 1 diesels drive two shafts through reverse and reduction gear boxes.

Each engine is of the 12 cylinder vee unsupercharged type with a rating of 1,050 h.p. at 920 r.p.m.

Appearance

Funnel and fore bridge are pearshaped in plan.

3 "Dampier" Class (ex-Frigates)

Displacement:	1,600 tons standard (2,230 tons full load)
Dimensions:	286 (pp.), 307 (o.a.)×38½×14½ (max.) feet
Guns:	4—3 pdrs. (and 2 D.C.T.)
Machinery:	2, 4-cylinder triple expansion, 2 shafts, I.H.P.: 5,500=19.5 kts.
Boilers:	2 Admiralty 3-drum type
Oil fuel	580 tons
Radius:	10,000 miles at 10 kts.
Complement:	149 (14 officers, 135 ratings)

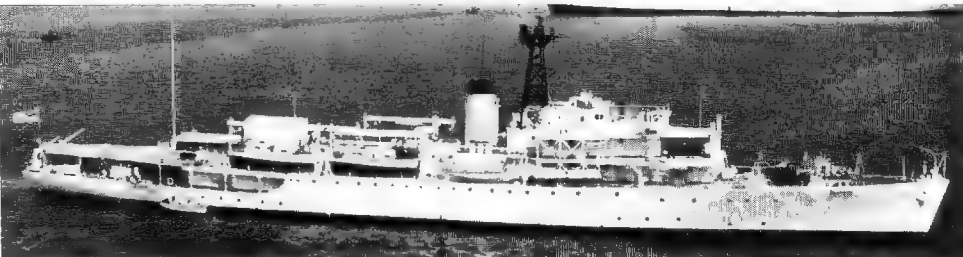
General
Modified frigates of the "Bay" Class. *Dalrymple* completed at H.M. Dockyard, Devonport; *Dampier* and *Owen* at H.M. Dockyard, Chatham. Equipped with radar and sonar. *Dampier* was refitted with an enclosed bridge in 1961.

Photographs

A photograph of *Owen* appears in the 1957-58 and earlier editions.

Engineering

The main machinery of *Dalrymple* was manufactured by George Clark Ltd., Sunderland.



DALRYMPLE

1964, A. & J. Pavla

Electrical

Power at 220 volts D.C., is from two 120 i.w. steam-turbine and two 150 kw. diesel generators.

Disposal

Sister ship *Cook* was listed for disposal by scrapping in 1965.

Disposals of "Scott" Class

Of the four survey ships (ex-fleet minesweepers) of the "Scott" class, *Franklin* and *Seagull* were scrapped in 1956 and *Shackleton* (ex-*Sharpshooter*), and *Scott* in 1965. (*Scott* was towed from Portsmouth to the West of Scotland Shipbreaking Co., Troon, on 30 June).

Name	Pennant No.	Builders	Laid down	Launched	Completed
DALRYMPLE (ex-Luce Bay, ex-Loch Glass)	A 302	Wm. Pickersgill & Sons Ltd., Sunderland	29 Apr. 1944	12 Apr. 1945	10 Feb. 1949
DAMPIER (ex-Herne Bay, ex-Loch Eil)	A 303	Smith's Dock Co. Ltd., South Bank-on-Tees	7 Aug. 1944	15 May 1945	6 June 1948
OWEN (ex-Thurso Bay, ex-Loch Muick)	A 311	Hall, Russell & Co. Ltd., Aberdeen	30 Sep. 1944	19 Oct. 1945	23 Sep. 1949

New Construction
Coastal Survey Craft

BEAGLE BULLDOG	FAWN FOX	PELICAN PORCUPINE
Displacement: 500 tons approx (official figure)		
General A new class of coastal survey ships planned for the charting and re-charting of shallow waters. Designed for duty overseas, working in pairs. The names originally allocated were <i>Albacore</i> , <i>Albatross</i> , <i>Barracouta</i> , <i>Bulldog</i> , <i>Fawn</i> and <i>Fox</i> , but three of these names were changed in 1965.		

New Conversion
Former Coastal Minesweepers

MERMAID (ex-Sullington)	MYRMIDON (ex-Edderton)
Displacement: 420 tons (official figure)	
Dimensions: 153 (o.a.)×28½×8½ feet	
Machinery: Diesels, 2 shafts, Speed—15 kts.	
Complement: 26 (3 officers, 23 ratings)	
General After conversion into survey ships commissioned for service on 17 and 20 July 1964, respectively, for hydrographic work in home waters. See photographs at bottom of next page.	

New Conversion
Former Inshore Minesweepers

WATERWITCH (ex-Powderham)	WOODLARK (ex-Yaxham)
Displacement: 160 tons	
Dimensions: 107½ (o.a.)×22×5½ feet	
Machinery: Diesels, 2 shafts, Speed—14 kts.	
Complement: 18 (2 officers, 16 ratings)	
General To replace the old survey motor launches <i>Meda</i> and <i>Medusa</i> for operation in inshore waters at home. See photograph of <i>Woodlark</i> (ex-Yaxham) at the bottom of Col. 1, Page 299.	

COASTAL MINESWEEPERS



SHAVINGTON (open bridge, lattice mast) 1965, Dr. Giorgio Arra



SHOULTON (Minehunter) 1963, Wright & Logan

91 "Ton" Class

ALVERTON (ex-Thames, ex-Alverton)	FLOCKTON	NURTON (ex-Montrose, ex-Nurton)
APPLETON	FLORISTON	OULSTON
ASHTON	GAVINGTON	PENSTON
BADMINTON (ex-Iiston)	GLASSERTON	PICTON
BEACHAMPTON	HICKLETON	PUNCHESTON
BELTON	HIGHBURTON	RENNINGTON
BEYINGTON	HOUGHTON	REPTON (ex-Ossington)
BILDSTON	HUBBERTON	RODINGTON
BLAXTON	ILMINGTON	ST. DAVID (ex-Crichton, ex-Clyde, ex-Crichton)
BOSSINGTON (ex-Embleton)	INVERMORISTON	SANTON
BRERETON (ex-St. David, ex-Brereton)	IVESTON	SEFTON
BRINTON	KEDLESTON	SHAVINGTON
BRONINGTON (ex-Humber, ex-Bronington)	KELLINGTON	SHERATON
BURNASTON	KEMERTON	SHOULTON
CALTON	KILDARTON (ex-Iiston)	SOBERTON
CARHAMPTON	KILLIECRANKIE (ex-Bickington, ex-Curzon, ex-Bickington)	STUBBINGTON
CAUNTON	KILMOREY (ex-Alfriston, ex-Warsash, ex-Alfriston)	TARLTON
CHILCOMPTON	KIRKLISTON (ex-Kilmorey, ex-Kirkliston)	THAMES (ex-Buttington, ex-Venturer, ex-Buttington)
CHAWTON	LALESTON	THANKERTON
CLARBESTON	LANTON	UPTON
CLYDE (ex-Amerton, ex-Mersey, ex-Amerton)	LETTERSTON	VENTURER (ex-Hodgeston, ex-Northumbria, ex-Hodgeston)
CONISTON	LEVERTON	WALKERTON
CROFTON	LEWISTON	WARSASH (ex-Boulston)
CURZON (ex-Fittleton)	LULLINGTON	WASPINGTON
CUXTON	MADDISTON	WISTON
DARTINGTON	MAYTON	WILKIESTON
DERRITON (ex-Killiecrankie, ex-Derriton)	MERSEY (ex-Pollington)	WOLVERTON
DUFTON	MONKTON (ex-Kelton)	WOOLASTON
FENTON	MONTROSE (ex-Dalswinton)	WOTTON
FISKERTON	NORTHUMBRIA (ex-Quinton)	YARNTON

Displacement:	360 tons standard (425 tons full load)
Dimensions:	140 (pp.), 153 (o.a.) \times 28 $\frac{1}{2}$ \times 8 $\frac{1}{2}$ feet
Guns:	1—40 mm. AA. (removed in some), 2—20 mm. AA.
Machinery:	2 diesels, 2 shafts. B.H.P.: 2,500 (Mirreles), 3,000 (Deltics)=15 kts. (max.) See Engineering
Oil fuel:	45 tons
Complement:	27 (minehunters 5 officers, 31 ratings)

General

These were a new type with double mahogany hull and constructed of aluminium alloy and other materials with the lowest possible magnetic attraction to attain the greatest possible safety factor when sweeping. John I. Thornycroft & Co. Ltd., Southampton, were the "parent" firm for the group which built this class of uniform design capable of sweeping both contact and influence type mines and dealing with mines operated magnetically and acoustically. The first, Coniston, was completed in Feb. 1953; she was fitted with Vosper stabilisers, and the whole class are being so fitted.

Survey Conversions

Edderton and Sullington of this class were converted into survey ships in 1964 and renamed MYRMIDON and MERMAID, respectively. See previous page and photographs below.



MERMAID (ex-Sullington) see previous page 1965, Official

Coastal Minesweepers—continued



SHERATON (Minehunter) 1965, Wright & Logan



LEWISTON (frigate bridge, tripod mast) 1963, Official

Nomenclature

Named after villages with the suffix "ton". Since 1954 some have been renamed on being allocated to the Royal Naval Reserve, taking the traditional names associated with the divisions (see below). Ships are not permanently attached to one division; on becoming due for refit they revert to their original names and might then be re-allocated to a different division or return to general service. The former Royal Navy and Royal Naval Reserve names are shown in parenthesis above.

Engineering

High speed diesels, standardised to simplify maintenance. The earlier vessels had Mirreles diesels, but most of the later units had Napier Deltic light weight diesels. Highburton, the first with Deltic diesels was accepted on 21 Apr. 1955. Most early ships have undergone conversion from Mirreles to Deltic diesels. The generators for electrical power are in separate engine rooms.

Appearance

Ashton, Chawton, Dilston, Dumbleton, Fiskerton, Houghton, Lewiston, Mersev (ex-Pollington), Nurton, Puncheston, Quinton, Repton, Sheraton, Soberton, Stubbington, Walkerton, Wilkleton, Wiston and others are fitted with an enclosed or frigate bridge and tripod mast. Appleton and Shoulton covered bridge.

Minehunting

Shoulton was fitted with unique mine-hunting equipment, an all-British Sonar development which enables her to locate and classify any mine-like objects on the sea bed with accuracy and range previously impossible. Since then Bronington, Iveston, Kirkliston, Sheraton and others have been or are being refitted as minehunters.

Experimental

Stubbington was constructed with a fibre glass bottom. Fittleton was remodelled.

Fishery Protection

Of this class Belton, Soberton, Wasperton and Wootton constitute a division of the Fishery Protection Squadron.

Transfers

Dunkerton and Hazleton were transferred to South Africa in 1955 and renamed Pretoria and Kaapstad, respectively. Durweston, Overton, Whitton and Wennington were transferred to India in 1956, and renamed Kakinada, Karwar, Connamore and Cuddalore, respectively. Castleton, Chilton, Dumbleton, Oakington, Packington and Stratton were transferred to South Africa in 1958-59 and renamed Johannesburg, East London, Port Elizabeth, Mosselbaai, Walvisbaai and Kimberley, respectively. With Durban and Windhoek. Darlaston was sold to Malaysia in 1960 and renamed Mahamiru, Hexton in 1963 and renamed Ledang, and Dilston and Esslington in 1964 and renamed Jerai and Kinabalu, respectively. Alcaston, Chediston, Jackton, Singleton, Somerley and Swanston were transferred to Australia in 1962, and renamed Snipe, Curlew, Teal, Ibis, Hawk, and Gull, respectively. Aldington was transferred to Ghana in 1964 and renamed Ejura.

Royal Naval Reserve Units

Eleven units are renamed and attached to Royal Naval Reserve Division Headquarters as follows (Division under Name):—

Thames	Curzon	Warsash	Venturer	St. David	Mersey
London	Sussex	Soient	Severn	S. Wales	Mersey
Kilmorey	Clyde	Montrose	Killiecrankie	Northumbria	
Ulster	Clyde	Tay	Forth	Tyne	

(The Humber Division was suppressed in 1958 and H.M.S. Humber reverted to her original name Bronington.)

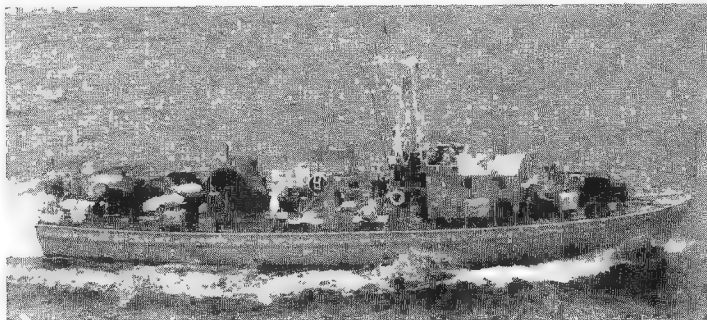
Photographs

A photograph of Coniston appears in the 1953-54 to 1957-58 editions, of Appleton in the 1954-55, 1955-56, 1957-58 editions, of Bildeston in the 1954-55 and 1955-56 editions, of Boulston in the 1956-57 to 1957-58 editions, of Dufton in the 1956-57 and 1957-58 editions, of Mersey (Amerton) in the 1956-57 edition, of Highburton in the 1957-58 edition, of Bossington and Repton in the 1958-59 and 1959-60 editions, of Houghton in the 1959-60 edition, of Wilkleton in the 1960-61 edition, of Hickleton and Monkton in the 1960-61 to 1964-65 editions, of Walverton in the 1961-62 to 1964-65 editions, and of Burnaston in the 1963-64 and 1964-65 editions.



MYRMIDON (ex-Edderton) see previous page 1965, Wright & Logan

INSHORE MINESWEEPERS



POLSHAM

1963, Official

37 "Ham" Class

M 2601 M 2701 and M 2777 Series

ABBOTSHAM
ARLINGHAM
BIRDHAM
BOREHAM
BUCKLESHAM
DITTISHAM
DOWNHAM
ELENHAM
EVERINGHAM
FELMERHAM
FLINTHAM
FORDHAM (ex-Pavenham)

FRITHAM
GEORGEHAM
HAVERSHAM
LASHAM
LEDHAM
LUDHAM
NEASHAM
NETTLEHAM
OCKHAM
ODIHAM
PAGHAM
POLSHAM

PORTISHAM
PUTTENHAM
RACKHAM
SANDRINGHAM
SAXLINGHAM
SHIPHAM
SHRIVENHAM
THAKEHAM
THATCHAM
THORNHAM
TONGHAM
WARMINGHAM
WOLDINGHAM

Displacement: 120 tons standard (159 tons full load)
Dimensions: 2601 Series: 100 (pp.), 106½ (o.a.)×21½×5½ feet
2701 Series: 100 (pp.), 107 (o.a.)×21½×5½ feet
2777 et seq.: 100 (pp.), 107½ (o.a.)×22×5½ feet
Guns: 1—40 mm. Bofors AA. or 1—20 mm. Oerlikon AA. forward (see Gunnery)
Machinery: 2 Paxman diesels. B.H.P.: 1,100=14 kts. max. (9 kts. sea speed) see Engineering
Oil fuel: 15 tons
Complement: 15 (2 officers, 13 ratings)

General

Designed to operate in shallow waters, such as rivers and estuaries. An entirely new type of vessel, they embodied novel features resulting from lessons learned during the war and in course of subsequent developments. Named after villages with the suffix "ham". The first inshore minesweeper, the *Inglesham*, was launched by J. Samuel White & Co. Ltd., Cowes, on 23 Apr. 1952. The 2701 series are of wooden construction, whereas the 2601 series are of composite construction. All the M 2701 series have a rubbing strake, unlike the M 2601 and M. 2001 series.

Gunnery

Most of the M 2601 series have had the 1—40 mm. gun replaced by 1—20 mm. All the M 2701 series have 1—20 mm.

Engineering

The main machinery was manufactured by Davey Paxman & Co. Ltd., Colchester, or by Ruston & Hornsby Ltd., Lincoln, Foden Ltd., Sandbach, Cheshire, or Ransomes, Sims and Jeffries Ltd., Ipswich, under licence from Davey Paxman.

Appearance

Most inshore minesweepers in commission now have black hulls.

Degaussing Conversions

Warmingham and others are to be converted into Degaussing Vessels to replace the older degaussing vessels of the converted MMS 1001 type.

Survey Conversions

Powderham and *Yaxham* were converted into inshore survey craft in 1964 on similar lines to the "E" class, see page 303 and renamed **WATERWITCH** and **WOODLARK**, see page 297.

Experimental

Reedham, launched on 19 Aug. 1958 at Anglesey, was fitted with Denny-Brown/Saunders-Roe small ship stabilising fins.

Royal Naval Reserve

Pulham was allocated to the London Division R.N.R. in 1956 and renamed *Isis*, but reverted to her original name, *Pulham*, in 1963 (when *Cradley*, see next column, was renamed *Isis*) and was placed on the disposal list in 1964.

Nomenclature

Rampisham was renamed *Squirrel* in 1958 on allocation to fishery protection duties, but reverted to the original name *Rampisham* in 1960, and was placed on the disposal list in 1964.

Photographs

A photograph of *Altham* appears in the 1957-58 and 1958-59 editions, of *Chillingham* in the 1958-59 and 1959-60 editions, of *Darsham* in the 1959-60 edition, and of *Woldingham* in the 1960-61 to 1964-65 editions.

Auxiliary Service

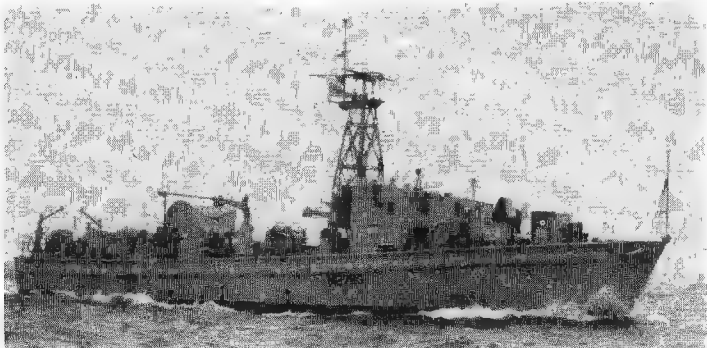
The following were brought forward from reserve in 1964 for the Royal Naval Auxiliary Service:—*Birdham*, *Odiham*, *Pagham*, *Portisham*, *Puttenham*, *Rackham*, *Saxlingham*, *Shipham*, *Shrivenham*, *Thakeham*, *Tongham* and *Woldingham*.



WOODLARK (ex-Yaxham)

Added 1965, Wright & Logan

Inshore Minesweepers—continued



ODIHAM

Added 1964, J. W. Kennedy

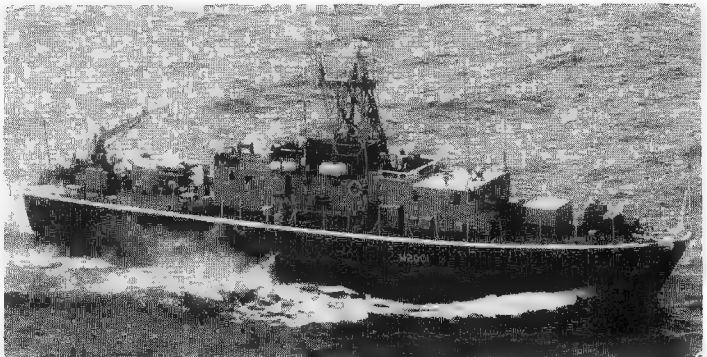
"Ham" Class—continued

Transfers

Frettenham, *Isham*, *Kingham*, *Mersham*, *Mileham*, *Petersham*, *Pineham*, *Rendlesham*, *Riplingham*, *Sparham*, *Stedham*, *Sulham*, *Tibenham*, *Wexham* and *Whippingham* (built in British yards under the United States Navy's off-shore procurement programme) were transferred to France in 1954-55; *Hildersham* and *Littlesham* to India in 1955 and renamed *Bimlipitan* and *Basseln*, respectively; *Bassingham* to East Africa on 25 June 1958, but returned to the Royal Navy on 9 Oct. 1961; *Bedham* to Malaysia in 1958 and renamed *Lanka Suka*. *Cardingham* and *Etchingham* to Hong Kong R.N.V.R. in 1959; *Altham*, *Asheldham* and *Brantingham* to Malaysia in 1959 and renamed *Sri Johar*, *Sri Perlis* and *Temasek*, respectively; *Malham* and *Ottringham* to Ghana at the end of 1959, and renamed *Yogoda* and *Afadzato* respectively; and *Harpham* and *Greetham* to Libya in 1963.

Disposals

Bisham and *Edlingham*, extensively damaged by fire on 29 Sep. 1956, were scrapped in 1959. The following were on the disposal list in 1964:—*Bassingham*, *Blunham*, *Bodenham*, *Bottisham*, *Brigham*, *Chillingham*, *Grantham*, *Halsham*, *Inglesham*, *Mickleham*, *Popham*, *Pulham*, (renamed *Isis* while attached to London R.N.R.), *Rampisham* (renamed *Squirrel* while on Fishery Protection), *Reedham*, *Sidlesham*, *Tresham*, *Wintringham* and *Wrentham*. *Cobham*, *Damerham*, *Darsham*, *Davenham*, *Glenham* and *Hovingham* were listed for disposal by scrapping in 1965, *Chelsham* was on the Sales List in 1965.



DINGLEY

1965, Skyfotos

6 "Ley" Class. M 2001 Series

AVELEY
BREARLEY

DINGLEY
ISIS (ex-Cradley)

WATCHFUL (ex-Broomley)
SQUIRREL (ex-Burley)

Displacement: 123 tons standard (164 tons full load)
Dimensions: 100 (pp.), 107 o.a.)×21½×5½ feet
Guns: 1—40 mm. AA. or 1—20 mm. AA. forward
Machinery: 2 Paxman diesels. B.H.P.: 700=13 kts.
Oil fuel: 15 tons
Complement: 15 (2 officers, 13 ratings)

General

The "Ley" class differ from the "Ham" class. They are of composite (non-magnetic metal and wooden) construction, instead of all wooden construction. Their superstructure and other features also differ considerably. They have no winch and sweeping gear, as they are mine hunters, not sweepers. They have smaller engines as less towing power is needed.

Fishery Protection

Broomley was renamed *Watchful* in 1958 on allocation to fishery protection duties and *Burley* was renamed *Squirrel* in 1960 on allocation to fishery protection duties.

Photographs

A photograph of *Aveley* appears in the 1954-55 edition, of *Watchful* in the 1959-60 to 1962-63 editions, and of *Brearley* in the 1963-64 and 1964-65 editions.

Royal Naval Reserve

Cradley was allocated to the London Division R.N.R. in 1963 and renamed *Isis*.

Disposal

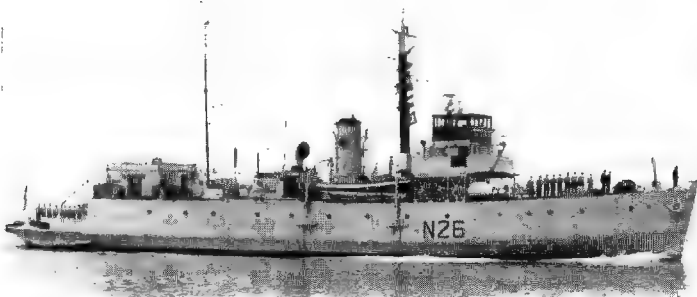
Broadley, extensively damaged by fire on 29 Sep. 1956, was scrapped in 1959. *Brenchley* and *Brinkley* were listed for disposal by scrapping in 1965. *Chailey* was on the Sales List in 1965, *Aveley* is in reserve.



SQUIRREL

1964, Wright & Logan

MINELAYERS



PLOVER 1963, Wright & Logan

I New Construction

Displacement: circa 1,200 tons standard (official figure)
Dimensions: 200×40×10 feet
Machinery: Davey Paxman diesels, Speed=15 kts.
Complement: 70

General
Exercise minelayer for the Royal Navy ordered in June 1965 from John I. Thornycroft & Co. Ltd., Woolston, Southampton. Her function will be in support of mine countermeasure forces, in laying exercise mines and the maintenance of these forces when they are operating away from their shore bases. She will replace a number of aging vessels now employed on this work.

PLOVER

I Coastal Type

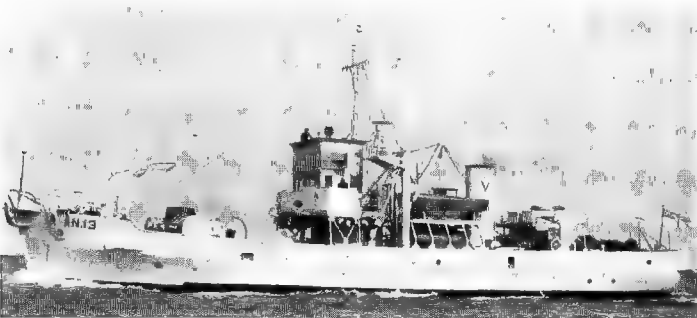
Displacement: 805 tons standard (1,020 tons full load)
Dimensions: 180 (pp.), 195½ (o.a.)×37½×10 (max.) feet
Machinery: Triple expansion, I.H.P.: 1,400=14.75 kts.
Complement: 69

General
Designed and built as a coastal minelayer. Pennant No. N 26. Built by Wm. Denny & Bros. Ltd., Dumbarton. Laid down on 7 Oct. 1936. Launched on 8 June 1937. Completed in Sep. 1937. Formerly employed as minelaying tender to the Torpedo and Anti-submarine School in H.M.S. Vernon. Refitted in 1955 when the mainmast was stepped, the radar cabinet on the flag deck removed, and the radar aerial erected on the roof of the bridge. Her original two machine guns were removed. Now employed in the Portsmouth Squadron under the administration of the Commander-in-Chief.

Photographs

A large photograph appears in the 1956-57 to 1959-60 editions, a larger aerial view in the 1959-60 edition, and an official photograph in the 1960-61 to 1962-63 editions.

CONTROLLED MINELAYERS



MINER III 1963, Wright & Logan

5 "Miner" Class

BRITANNIC (ex-Miner V) GOSSAMER (ex-Miner II)	MINER III MINER VI	STEADY (ex-Miner III)
Displacement: 300 tons standard 346 to 355 tons full load)		
Dimensions: 110½×26½×8 feet		
Machinery: Ruston & Hornsby diesels. 2 shafts. B.H.P.: 360=10 kts.		

General
All built by Philip & Son Ltd., Dartmouth, and all engined by Ruston & Hornsby Ltd., Lincoln. Gossamer is an experimental torpedo trials vessel and is no longer capable of minelaying. Miner V was converted into a cable lighter and renamed Britannic in 1960. Miner VII was adapted as a stabilisation trials ship at Portsmouth and renamed Steady in 1960. Miner III is tender for Clearance. Diving Teams attached to H.M.S. Vernon. Miner VI was torpedo recovery vessel in Malta for the Fifth Submarine Division until it was withdrawn from the Mediterranean in Aug. 1964.

Photographs

Larger photographs of Miner V and Gossamer (aerial view) appear in the 1957-58 and earlier editions. A large photograph of Miner VI appears in the 1958-59 and 1959-60 editions, and another in the 1960-61 to 1962-63 editions.

Name	Pennant No.	Laid down	Launched	Completed
Gossamer (ex-Miner II)	N 12	22 Dec. 38	18 Aug. 39	19 Jan. 40
Miner III	N 13	18 Jan. 39	16 Nov. 39	16 Mar. 40
Britannic (ex-Miner V)	Ex-N 15	22 Apr. 40	2 Nov. 40	26 June 41
Miner VI	N 16	22 Apr. 41	7 Feb. 42	30 May 42
Steady (ex-Miner VII)	Ex-N 17	31 Mar. 43	29 Jan. 44	31 Mar. 44

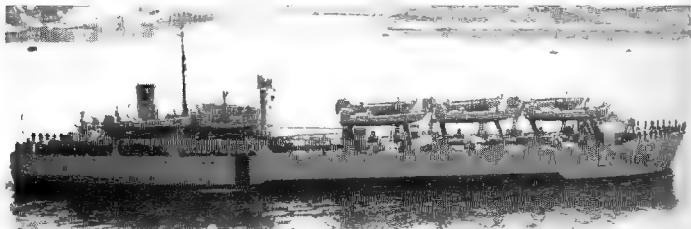
Disposals

Of the "Miner" class, Miner IV and Mindful (ex-Miner VIII), formerly tender to the experimental submarine Explorer, were sold for scrap in 1965. Minstrel (ex-Miner I), formerly accommodation ship for the experimental submarine Excalibur, was listed for disposal by scrapping in 1965.

The controlled minelaying trawler Redshank was scrapped in 1958. The controlled minelayer Penyu was disposed of in 1959, see below.

The controlled minelayer Linnet was sold for scrap in 1964.

TANK LANDING SHIPS



STRIKER 1963, A. & J. Pavia



ANZIO 1962, Official

2 LST (A) Type

ANZIO (ex-LST (A) 3003)	STRIKER (ex-LST (A) 3516)
Displacement: 2,140 tons light (5,000 tons full load)	330 (pp.), 347½ (o.a.)×55½×4½ (forward), 12 (max.) feet
Dimensions: 7 or 8—20 mm. Oerlikon AA., 4—40 mm. forward; Anzio 6—40 mm.	Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=13 kts. (10 kts. cruising)
Guns: 2 Admiralty 3-drum type	Boilers: 1,400 tons
Machinery: 2 Admiralty 3-drum type	Oil fuel: 1,400 tons
Boilers: 115 officers and ratings (Striker 152)	Complement: 115 officers and ratings (Striker 152)

General

Could carry 10 tanks plus 15 vehicles. The above ships were converted to LST (A). They were stiffened to carry heavy tanks. Anzio was converted to LST (A) in 1955-56. All the "Empire" named LSTs have no armament.

Class

LST (3) 3001, 3009, 3201, 3024, 3028, 3037 and 3509 were transferred on charter to the War Office, and LST (3) 3010, Empire Cymric, LST (3) 3041, Empire Doric, LST (3) 3507, Empire Gaelic, LST (3) 3512, Empire Celtic, LST (3) 3519, Empire Baltic and LST (3) 3534, Empire Cedric were on commercial charter through the Ministry of Transport but were available for recall in emergency. LST (3) 3002, 3007, 3020, 3503 and 3506 were transferred on loan to the Royal Hellenic Navy. LST 322 returned from the Royal Hellenic Navy in May 1953.

Transfers

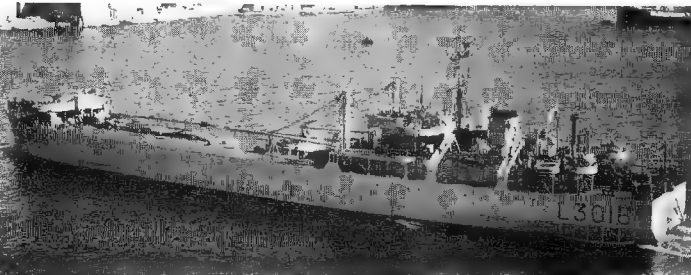
On commercial charter Battler became Empire Puffin (lent to the Ministry of Transport and subsequently disposed of. Pursuer became Empire Tern, St. Nazaire became Empire Skua, Slinger became Empire Kittiwake, Thruster became Empire Petrel, Tromso became Empire Gannet and LST (3) 3033 became Empire Shearwater (lent to the Ministry of Transport).

Nomenclature

All the "Empire" names above were given to LSTs taken over by the Ministry of Transport and Civil Aviation at the time of the Suez action in 1956.

Disposals

Bruiser was stricken in 1959, Empire Cedric, Empire Doric and Vagso were scrapped in 1960. Puncher and Ravager were scrapped in 1961. Chaser, designated as a submarine support ship in 1958, was for disposal in 1962. Empire Baltic, Empire Celtic, and LST (3) 3033 were scrapped in 1962. LST (3) 3031 was a fender ship in 1963.



DIEPPE Added 1960, A. & J. Pavia

3 LST (3) Type

DIEPPE (ex-LST (3) 3016)	STALKER (ex-LST (3) 3515) TRACKER (ex-LST (3) 3522)
Displacement: 2,140 tons light (4,820 tons full load)	330 (pp.), 347½ (o.a.)×55½×4½ (forward), 12 (max.) feet
Dimensions: 8—20 mm. Oerlikon AA.	Machinery: Triple expansion, 2 shafts. I.H.P.: 5,500=13 kts. (10 kts. cruising)
Guns: 2 Admiralty 3-drum type	Boilers: 1,400 tons
Machinery: 2 Admiralty 3-drum type	Oil fuel: 1,400 tons
Boilers: 115 officers and ratings	Complement: 115 officers and ratings

General

Stalker was designated as a submarine support ship in 1958. Lofoten, designated as a harbour accommodation ship in 1958, was converted into the Royal Navy's first helicopter support ship in 1964 (see later page). Tracker, designated as a harbour accommodation ship in 1958, was converted into a net and boom carrier in 1964. Smiter was wrecked of Lagos on 25 Apr. 1949.

Transfer

Sister ship Avenger was transferred to the Indian Navy in 1949 and renamed Magar.

Nomenclature

On commercial charter Charger became Empire Nordic, Fighter became Empire Grebe, Hunter became Empire Curlew, Trouncer became Empire Gull, Trumpeter became Empire Fulmar and Walcheren became Empire Guillemot, Attacker was renamed Empire Cymric on commercial charter in 1954.

Disposals

Searcher was scrapped in 1949, Reggio, Salerno and Sulva in 1960, and Hunter in 1962. Zebrugge, employed as a harbour accommodation ship since 1958, was on the disposal list in 1963.

Tank Landing Ships—continued



MESSINA

1963, A. J. Pavia



NARVIK

1963, A. & J. Pavia

2 LST (C) Type

MESSINA (ex-LST (C) 3043)	NARVIK (ex-LST (C) 3044)
Displacement:	2,256 tons light (4,980 tons full load)
Dimensions:	330 (pp.), 345 (o.a.) \times 54 \times 4 $\frac{1}{2}$ (forward), 12 $\frac{1}{2}$ (max.) feet. (Beaching draughts)
Guns:	10—20 mm. Oerlikon AA. (Messina 4—40 mm. Bofors AA. and 20 mm.)
Machinery:	Triple expansion, 2 shafts. I.H.P.: 5,500=13 kts.
Boilers:	2 of the three-drum type
Oil fuel:	1,400 tons
Complement:	105

General

Could carry 1 LCT, 5 LCA, 15 40-ton tanks, 15 lorries. *Narvik* was flagship of the task force for the nuclear test in Monte Bello Islands in 1956. Her disposal in 1960 was reconsidered and she was fitted out as a submarine support ship at Chatham to relieve the submarine depot ship *Forth* serving the First Submarine Squadron in the Mediterranean and as accommodation ship at Malta. She is now accommodation ship for technical officers and ratings at the Polaris base at Faslane until permanent quarters ashore are completed. *Messina* took part in the nuclear test at Christmas Island in 1956-58, and was converted to an LST (A) in 1960 for service in the Amphibious Warfare Squadron.

Photographs

A larger photograph of *Narvik* appears in the 1952-53 to 1959-60 editions, a port bow view in the 1961-62 and 1962-63 editions, and an aerial view of *Messina* in the 1960-61 to 1962-63 editions.

Disposals of "Ben" Class

Of the two LST (Q) type tank landing ships, *Ben Nevis* was listed for disposal by scrapping in 1965, and *Ben Lomond* was sold out of the Service in 1960.

TANK LANDING CRAFT



L 3507 1963, courtesy Vosper Ltd., Portsmouth (Builders)

2 LCM (9). + 10 New Construction.

LCM (9) 3507	LCM (9) 3508
Displacement:	75 tons light (176 tons loaded)
Dimensions:	85 (o.a.) \times 21 $\frac{1}{2}$ \times 5 $\frac{1}{2}$ feet
Capacity:	2 Centurion tanks
Machinery:	2 Paxman diesels, 2 shafts B.H.P.: 550=10 kts.

General

The first operational minor landing craft to be built since the Second World War. Ramped in the traditional manner forward, a completely enclosed radar-fitted wheelhouse is positioned aft. Upon completion they carried out familiarisation trials to perfect the new techniques required in launching and recovering LCMs from the flooded sterns of the parent assault ships.

Construction

The prototype, L 3507, was laid down in Apr. 1962 and accepted on 19 Mar. 1963. L 3508 was begun in May 1962 and handed over on 6 June 1963. Both built by Vosper Ltd., Portsmouth. Ten more of these craft are on order.

Design

A new type of Landing Craft Mechanized for operation with the Assault Ships being built for the Royal Navy. Designed by Vosper in collaboration with the Royal Navy. The design was evolved as the result of the most exhaustive tank trials ever carried out on a landing craft. Scale models were made and operated by remote control in the Admiralty Experiment Works test tank at Haslar, using simulated wave conditions to prove the design in the roughest possible sea conditions, resulting in a design incorporating new standards of landing craft stability.

Engineering

The Paxman diesel engines are of the A6YHXAM type, the shafts being geared by a Vee-drive to enable the propulsion machinery to be placed as far aft as possible, an arrangement which provides a clear well deck for tanks and heavy transport which will be carried in the new assault ships.

Steering

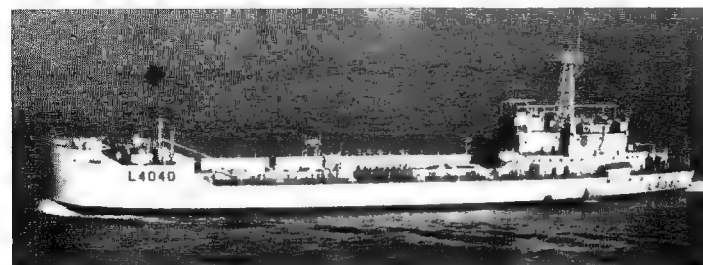
Fitted with Kort rudders, which consist of a swivelling ring surrounding each of the two propellers and replace conventional rudders. The Kort rudders produce more precise steering and control when going ahead or astern. The ring enclosing each propeller also provides a measure of protection when beaching in shallow water during disembarkation or recovery of tanks and heavy transport.

Tank Landing Craft—continued



RAMPART (deckhouse forward)

1965, Dr. Giorgio Arra



BASTION

Added 1962, A. & J. Pavia

Major Landing Craft
5 LCT (8) Type (and FGV)

BASTION (ex-LCT (8) 4040)	PARAPET (ex-LCT (8) 4039)
CITADEL (ex-LCT (8) 4038)	PORTCULLIS (ex-LCT (8) 4044)
	RAMPART (ex-LCT (8) 4037)
Displacement:	657 tons light, 895 to 1,000 tons loaded
Dimensions:	225 (pp.), 231 $\frac{1}{2}$ (o.a.) \times 39 \times 3 $\frac{1}{2}$ (forward), 5 (aft) feet (Beaching draughts)
Machinery:	4 Paxman engines. B.H.P.: 1,840=12.6 kts. (9 kts. cruising)
Complement:	33 to 37

General

Bastion, *Rampart* and *Redoubt* have lattice mast (see photographs). *Rampart* has deckhouse forward, *Citadel* (LCT (8) 4038) and *Portcullis* (LCT (8) 4044) were to have been converted to Fleet Degaussing Vessels. LCT (8) 4002, 4041, 4061 (*Audermere*), 4062 (*Aachen*), 4073, 4074 (*Antwerp*), 4085 (*Agedobia*), 4086 (*Arromanches*), which has a large lattice mast forward, 4097 (*Andalnes*), 4120 (*Arezzo*) and 4164 (*Arrakan*) were loaned to the War Office.

Photographs

Photographs appear of *Redoubt* in the 1956-57 to 1959-60 editions, and of *Arromanches* in the 1960-61 and 1961-62 editions.

Disposals

LCT (8) 4042, 4045, 4050, 4148, 4156 and 4165 were stricken from the list in 1958, and 4025, 4049, 4063 and 4098 in 1960. LCT (8) 4063, *Jawada*, on loan to a commercial company, was for disposal at Bahrain. *Buttress*, *Redoubt* and *Sallyport* were listed for disposal by scrapping in 1965. *Counterguard* was sold to Malaysia in 1965 and renamed *Sri Langkawi*.

Disposals of LCT (4)s

LCT (4) 404 (ex-1231), LCT (4) 405 (ex-523) and LCT (4) 407 (ex-1106) were scrapped in 1960. LCT (4) 403 (ex-1220) LCT (4) 406 (ex-941) and LCT (4) 408 (ex-1202) were for disposal with LCT (4) 1247 and LCT (4) 1283, on the sale list.) LCT (4) 1312 was sold to Nigeria in 1959 and renamed *Lokaja*.

II MRC (Ex-LCT)

CANNA (MRC 1109)	MEDWAY (MRC 1110)	SIMBANG (MRC 1100)
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General

Maintenance and Repair Craft, former Tank Landing Craft, *Canna*, rated as Naval Servicing Craft (Engineering) was in Singapore reserve, now for disposal. *Medway* (see photograph on page 290) rated as Submarine Support Ship, base ship at Singapore, Seventh Submarine Division. *Simbang*, nominal depot ship, R.N. Air Station, Singapore. Also MRC 1013, 1015, 1023, 1097, 1098, 1119 (for disposal), 1120, and 1413 (ex-LCT (E) 413) used as a power and workshop, Malta. MRC 1122 was sold to Ghana in July 1965 and renamed *Asuantsi*.

Minor Landing Craft

6 LCM. 7,000 Series (and NSB)

Displacement:	28 tons light (63 tons loaded)
Dimensions:	60 $\frac{1}{2}$ \times 16 \times 3 $\frac{1}{2}$ feet
Machinery:	B.H.P.: 290=9.8 kts.

General

There are six LCM (7)s ranging from No. 7016 to 7104. Some are employed as naval servicing boats and store carriers: 7037 (NSB 351), 7100 (NSB 359), 7104 (NSB 358).

Engineering

Some of the surviving LCM (7) type landing craft were re-engined with Gray Marine diesels.

47 LCA. 100 Series and 1,000 Series

Displacement:	8.5 tons light (13.5 tons full load). LCA (2)s 11.5 tons light (16 tons full load)
Dimensions:	41 $\frac{1}{2}$ LCA (2)s. 43 \times 10 \times 2 $\frac{1}{2}$ feet
Machinery:	B.H.P.: 130=8 kts. LCA (2)s: 2 Foden diesels, B.H.P.: 200=10 kts.

General

There are 38 LCA (2)s Nos. 101 to 145 and 9 LCA (1)s ranging from No. 1485 to No. 1789. There were also a number of variations and prototypes of about the same length (43 feet). Raiding Landing Craft, including LCR 5507 and 5508, and Navigational Landing Craft, including LCN 604 (ex-LCR 5505). LCA (1) 1275, 1330, 1481, 1485, 1644, 1678, 1705, 1712, 1733, 1745, 1779 and 1787 were for disposal in 1961, eleven more in 1963, and 1272, 1543, 1639, 1972 and 1981 in 1964. LCA (2)s carried by *Intrepid* and *Fearless* can carry 35 troops or 2 Land Rovers. Crew 4.

6 LCP (L) 1, 2 and 3. 500 Series

Displacement:	6.5 tons light (10 tons loaded)
Dimensions:	37 \times 11 \times 3 $\frac{1}{2}$ feet
Machinery:	B.H.P.: 225=12 kts.

General

There are 3 LCP (L)s, Nos. 553, 556 and 559, see details above, one LCP (L) 2, No. 501, and two LCP (L) 3s. Nos. 502 and 503.

Engineering

Aurora gas turbines were installed in LCP (L) 3 No. 502.

FAST PATROL BOATS



BRAVE BORDERER

1964, Skyfotos



BRAVE SWORDSMAN

1963, Official

2 "Brave" Class

(Gas Turbine Type Convertible Torpedo Gunboats)

BRAVE BORDERER

BRAVE SWORDSMAN

Displacement:	89 tons standard (114 tons full load)
Dimensions:	90 (pp.), 96 (w.l.), 98½ (o.a.)×25½×6½ (mean)
Armament:	As M.G.B.: 2—40 mm. single Bofors guns in power operated mountings, and 2—21 inch side launched torpedoes
	As M.T.B.: 4—21 inch side launching torpedoes, and 1—40 mm. single Bofors gun
Machinery:	3 Bristol Marine Proteus 1,250 gas turbine propulsion units and jets, 3 shafts. S.H.P.: 10,500—over 50 kts. on trials). Fixed pitch propellers
Fuel capacity:	25 tons
Complement:	20 (3 officers, 17 ratings); 22 as Senior Officers' Ship of a Squadron (3 officers, 19 ratings)

General

Fast Patrol Boats (Medium), convertible gunboats and torpedo boats, intermediate between the "Bold" and "Dark" classes. Built by Vosper Ltd., Portsmouth. The hull is framed in welded aluminium with double skinned planking of mahogany and sheathed with glass fibre below the waterline. An hydraulic operated flap fitted on the transom maintains the running trim. Very beamy in relation to length, the ratio being less than 1:4 only. *Brave Borderer*, was launched on 7 Jan. 1958 and accepted on 26 Jan. 1960. Cost: £880,000. *Brave Swordsman* was launched on 22 May 1958 and was handed over on 20 July 1960. Cost: £640,000.

Engineering

Powered with Proteus Gas Turbines, originally designed for aircraft use, but adapted for marine purposes by Bristol Siddeley Engines Ltd., Filton, in association with W. H. Allen, Sons & Co. Ltd., Bedford, who supplied the primary reduction gears and the reverse reduction gearboxes. Rover Gas Turbines driving Metro-Vickers 40 kw. generators provide electrical power. No diesel machinery. Both Proteus and Rover turbines run on diesel fuel. Authorised maximum rating of Proteus is 3,500 S.H.P. and maximum continuous rating 2,800 S.H.P. A striking feature is that with the primary reduction gearbox the Proteus gives one H.P. for every 0.83 lbs. of its weight, and including the reverse reduction gearbox, one H.P. for every 1.6 lbs. of its weight. Designed for offensive operations against enemy warships and merchant ships in coastal, inshore and shoal waters, where high speed is essential. The propellers are relatively small and of high speed. This was a novel and unusual feature resulting from joint research carried out by the Royal Navy and Vosper Ltd. using the firm's cavitation tunnel. Gas turbines give an increase of 35 per cent in total power combined with a reduction of 50 per cent in machinery and a saving of 25 per cent in machinery space.

Electrical

The electrical system incorporates experimental light weight equipment designed and installed by Vosper Ltd., to make an overall contribution to weight reduction. The generator units comprise two Rover gas turbines, each of 40 kilowatts.

Design

The design studies were carried out by Vosper with Royal Navy departments and co-ordinated by the Director General, Ships, whose extensive research facilities were available at all stages in design. Both craft underwent extensive evaluation trials and the design proved to be very satisfactory.

Armament

The originally designed armament, functioning as Motor Gun Boats, comprised one 3.3 inch turret mounted gun specially developed for these craft, with a stabilisation system capable of dealing with the motion experienced in such high speed craft. With the 3.3 inch gun was one 40 mm. gun and two 21 inch torpedoes.

Functional

In addition to their roles as gunboats or torpedo boats these craft can also be employed as minelayers or high speed raiding craft for Commandos.

Experimental

Both were initially in the Coastal Forces Trials and Special Service Squadron, based at H.M.S. *Dolphin II*, formerly H.M.S. *Hornet*, shore headquarters at Gosport.

Fishery Protection

In Aug. 1962 both were attached to the Fishery Protection Squadron in British waters to achieve greater surprise in areas where poaching was likely, a role for which with their high speed they are eminently suitable.

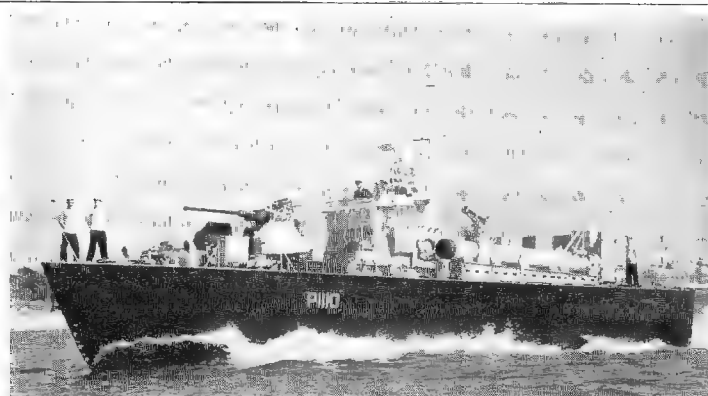
Photographs

Photographs as torpedo boats (carrying four torpedoes) appear in the 1960-61 to 1962-63 editions (*Brave Borderer*) and 1961-62 and 1962-63 editions (*Brave Swordsman*).

Disposals of "Bold" Class

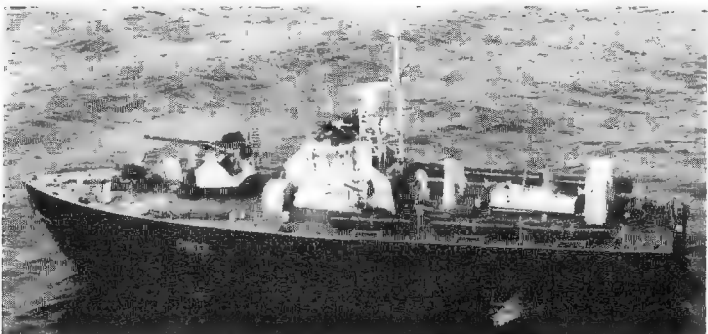
Bold Pathfinder was disposed of in 1962 and *Bold Pioneer* in 1958.

Fast Patrol Boats—continued



DARK HIGHWAYMAN

1960, Wright & Logan



DARK ANTAGONIST (carrying 6 ground mines)

Added 1960, Official

6 "Dark" Class

(Convertible Motor Torpedo Boats and Motor Gunboats)

DARK ADVENTURER

DARK GLADIATOR

DARK HERO

DARK HIGHWAYMAN

DARK HUSSAR

DARK INTRUDER

Displacement:	50 tons standard (70 tons full load)
Dimensions:	67 (w.l.), 71½ (o.a.)×19½×3½ (mean), 6½ (max.)
Armament:	As M.G.B.: 1—4.5 inch gun, 1—40 mm. AA. gun (or 2—40 mm. AA. guns)
	As M.T.B.: 4—21 inch torpedo tubes, 1—40 mm. AA. Rocket flare launchers and depth charge chutes were also fitted
Machinery:	2 Napier Deltic diesels. S.H.P.: 5,000=46 kts. (designed), 35 to 37 kts. sea speed
Fuel capacity:	8 tons
Complement:	15

General

Of composite construction, aluminium alloy being used for the framing and deck. Hulls are painted black. Cost £32,500, to £338,000 each. These diesel engine craft, completed in 1954-58, brought to a close the era of petrol engine boats in coastal forces. They were of newer design, had more power, mounted a better armament and were generally more reliable.

Engineering

A new design of diesel machinery which for its power was the lightest unit so far designed. The Napier Deltic, an opposed piston two-stroke engine, of high performance, constructed in triangular form with three crankshafts, an arrangement new to engineering. It was designed and developed for the Royal Navy by D. Napier & Son Ltd., London, on behalf of their parent company, the English Electric Company Ltd. The engine develops 2,500 S.H.P. at 2,000 r.p.m. The engine and reverse gear weighs only 10,500 lbs, and therefore gives one H.P. for every 4.2 lbs. of its weight. This is the best power-weight ratio ever achieved in a marine diesel. All power is provided by diesel machinery. A Foden FD, 4 two-stroke diesel drives the 35 kw. auxiliary generator set and bilge pump.

Functional

In addition to their roles as gunboats or torpedo boats these craft can also be employed as minelayers (see photograph of *Dark Antagonist* above).

Experimental

Unlike the earlier craft which were of composite wood planking on aluminium framing, *Dark Scout*, the last of the 18 boats, built by Saunders-Roe (Anglesey) Ltd., Beaumaris, was of all-welded aluminium throughout. The hull was of hard chine form, developed to give good seagoing qualities combined with high maximum and cruising speeds.

Class

Fifteen vessels of the "Dark" type were purchased by Burma, and two by Finland.

Photographs

Photographs appear of *Dark Hussar* in the 1959-60 edition, of *Dark Adventurer* (as gunboat) in the 1955-56 to 1958-59 editions, of *Dark Rover* (as torpedo boat) in the 1957-58 edition, and of *Dark Aggressor* in the 1955-56 and 1956-57 editions.

Cancellation

The construction of the 19th boat of the class, *Dark Horseman*, was abandoned.

Disposals

Following the decision in 1957 to take nearly all fast patrol boats out of commission, nine new boats of the "Dark" Class, *Dark Aggressor*, *Dark Antagonist*, *Dark Avenger*, *Dark Biter*, *Dark Buccaneer*, *Dark Clipper*, *Dark Invader*, *Dark Killer* and *Dark Rover* were to be disposed of. But on 20 Dec. 1960 it was stated that the Navy had not abandoned coastal forces altogether. A nucleus had been kept alive of three boats in the fast Special Service Squadron (two "Braves" and one "Bold") so that the art would not be lost, and nine boats of the "Dark" class were in operational reserve, therefore preserving the foundations on which the forces could be rapidly expanded if they were needed. Actually, however, of the 18 boats of the "Dark" class only *Dark Aggressor*, *Dark Hunter* and *Dark Scout* have been disposed of. *Dark Fighter* was in the 1st F.P.B. Squadron in 1964 (with the two "Braves"). *Dark Adventurer*, *Dark Gladiator*, *Dark Hero*, *Dark Highwayman*, and *Dark Hussar* were in reserve, on the Sales List, in 1965; and *Dark Antagonist*, *Dark Avenger*, *Dark Biter*, *Dark Buccaneer*, *Dark Clipper*, *Dark Fighter*, *Dark Invader*, *Dark Killer* and *Dark Rover* were on the Scrap List. *Dark Intruder* was on training duties at Portland in 1965.

Disposals of "Gay" Class

Gay Bruiser, *Gay Centurion*, *Gay Dragoon* and *Gay Forester* were on the sales list in 1961. *Gay Archer*, *Gay Bombardier*, *Gay Bowman*, *Gay Caribineer* and *Gay Cavalier* were on the disposal list in 1963, and *Gay Charger*, *Gay Charlotteer* and *Gay Fencer*, latterly employed as fast target towing boats, in 1964.

SEAWARD DEFENCE BOATS



ICKFORD 1963, Official



SHALFORD (squid aft) 1961, Official

17 "Ford" Class

ABERFORD P 3102	DROXFORD P 3113	KINGSFORD P 3121
AXFORD P 3103	DUBFORD P 3119	MARLINGFORD P 3122
BECKFORD P 3104	GIFFORD P 3111	MAYFORD P 3114
BRYANSFORD P 3106	GREATFORD P 3109	MONTFORD P 3124
CAMBERFORD P 3107	HINKSFORD P 3115	SHALFORD P 3101
	ICKFORD P 3116	TILFORD P 3123
Displacement:	120 tons standard (160 tons full load)	
Dimensions:	110 (pp.), 117½ (o.a.)×20×5 feet	
Guns:	1—40 mm. Bofors AA. (none in Ickford)	
A/S weapons:	Shalford: Squid triple-barrelled depth charge mortar aft	
	Others: D.C. rails and large and small D.C.	
Machinery:	Davey Paxman diesels. Foden engine on centre shaft.	
Complement:	B.H.P.: 1,100—18 kts. (max.), 15 kts. sea speed	

General
Designed to detect, locate and destroy submarines, including midget submarines, in the approaches to defended ports. All built in 1953-57. Modern electronic equipment, depth charge release gear and flares. Comprehensive electrical installations. *Ilford*, launched on 21 Nov. 1956 by Vosper Ltd., Portsmouth, has main machinery manufactured by Ransomes, Sims & Jeffries Ltd., Ipswich, under licence from Davey Paxman & Co. Ltd., Colchester, and Fodens Ltd., Sandbach, Cheshire.

Photographs
Photographs appear of *Aberford* in the 1957-58 to 1959-60 editions, and of *Hinkford* in the 1960-61 to 1962-63 editions.

Transfers
Brayford was sold to South Africa in 1954 and *Glassford* in 1955. *Desford* was transferred to Ceylon in 1955. *Elmina* and *Komendo* were built for Ghana in 1962. Royal Naval Reserve

Droxford was attached to the Mersey Division R.N.V.R., and renamed *Dee* (until 1959 when she became tender to H.M.S. *Vincent* at Gosport), *Dubford* to the Clyde Division and *Greatford* to the Sussex Division. *Beckford* and *Kingsford* transferred to Mersey and Clyde divisions, respectively, in Dec. 1964.

ICEBREAKER



TERRA NOVA 1964 Official

I New Construction

TERRA NOVA	7,000 tons (approx.) official figure
Displacement:	260×64×30 feet
Dimensions:	4—3 pdr.
Guns:	Aircraft: 2 Wasp helicopters
Aircraft:	Machinery: 4 diesel-electric. 2 shafts. H.P.: 15,000=16 kts.
Machinery:	

General
The Royal Navy's first icebreaker. To be named after Captain Scott's famous ship. Tenders for design and construction were invited from shipbuilding firms on 6 Apr. 1964. To replace H.M.S. *Protector*, the Royal Navy's only "Ice Patrol Ship. *Terra Nova* will combine the tasks of patrol, survey and scientific support. Her hull will be all-welded and designed for breaking thick ice. A stabilisation system will be fitted to reduce rolling. Heeling tanks will enable the ship to be "rocked" to free herself should she become wedged in thick ice. Very beamy in relation to her length, the ratio being only 1 to 4. Her machinery can be controlled directly from the bridge and the ship can be coned from several positions. The ship will be fitted with extensive laboratories and deck equipment to be used in oceanographic work and hydrographic surveys in Antarctica. A hangar and flight deck aft will serve the helicopters carried to assist in survey work, transport scientists and equipment to bases, and reconnoitre for passage through icefields.

INSHORE SURVEY CRAFT



ECHO (as built with gun) Added 1960, Official

3 "E" Class

ECHO A 70	EGERIA A 72	ENTERPRISE A 71
Displacement:	160 tons	
Dimensions:	106½ (o.a.)×22×5 feet	
Machinery:	2 Paxman diesels. 2 shafts. Controllable pitch propellers.	
	B.H.P.: 700=14 kts. (max.), 12 kts. (normal)	
Oil fuel:	15 tons	
Complement:	18 (2 officers, 16 ratings)	

General
Echo, the first Inshore Survey Craft, was launched by J. Samuel White & Co. Ltd., Cowes, on 1 May 1957, and commissioned on 12 Sep. 1958. *Egeria* was built by Wm. Weatherhead & Sons Ltd., Cokenzie, and *Enterprise* by M. W. Blackmore & Sons Ltd., Bideford. Of all-wood construction with glued laminated members. *Echo*'s main machinery manufacturers were Davey Paxman & Co. Ltd., Colchester. No armament; but was fitted with a 40 mm. gun for trials (see photograph above) and retains her gun seat. In wartime she could be used as an armed inshore minehunter on which her design was based. All built for coastal and harbour hydrographic surveys around the British Isles. Ability to navigate in shoal water, to obtain depths and detect wrecks on the sea bed, and to fix the position with accuracy. Equipped with two echo sounding machines and sonar for wreck location, and survey equipment for triangulation ashore. Modern radar, wire sweep gear, echo sounding launch, and modern chart room.

Photographs
A larger photograph of *Echo*, without armament appears in the 1959-60 edition.

Disposals of Survey Motor Launches
Meda (ex-SML 352, ex-HDML 1301) and *Medusa* (ex-SDML 3516, ex-HDML 1516) were listed for disposal at the end of 1964. SML 324 was scrapped in 1960, SML 327 in 1957, and SML 322, SML 325 and SML 326 in 1959. SML 323 (ex-HDML 1081) was transferred to Iran on 21 June 1956.

Disposals of Seaward Defence Motor Launches
Sole survivor of a numerous class, SDML 3515 was presented to Nigeria in 1959.

Disposals of Rescue Motor Launches
RML 496 was scrapped in 1958 and RML 572 and RML 515 disposed of in 1959.

Disposals of Motor Minesweepers
Of the survivors MMS 1556 and MMS 1579 were disposed of in 1960, and MMS 1632 and MMS 1654 became yard craft in Bombay.

Disposals of Minesweeping Motor Launches
The four remaining, ML 2250, ML 2583, ML 2592 and ML 2840 were de-rated to tenders, target boats, etc., in 1960 and listed for disposal. MML 2217 and MML 2223, were transferred to Nigeria in 1960.

HELICOPTER SUPPORT SHIPS

I New Construction

ENGADINE

General
A new helicopter support ship was projected under the 1964-65 Navy Estimates.



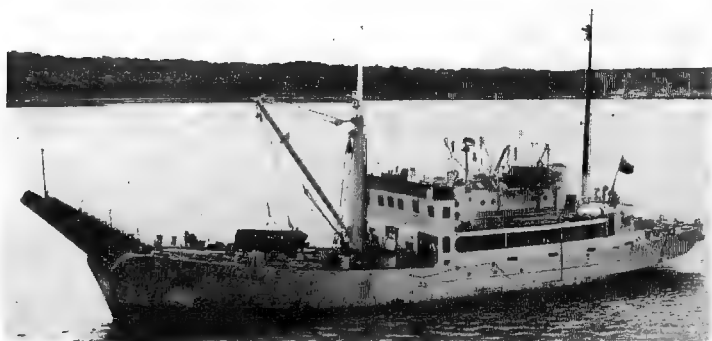
LOFOTEN (first helicopter support ship) 196 Official

I Converted Ex-LST (3) Type

LOFOTEN (ex-LST (3) 3027) K 07	
Displacement:	2,140 tons light (4,820 tons full load)
Dimensions:	330 (pp.), 347½ (o.a.)×55½×12 (max.) feet
Machinery:	Triple expansion. 2 shafts. I.H.P.: 5,500=13 kts.
Boilers:	2 Admiralty 3-drum type

General
Formerly a tank landing ship and latterly a harbour accommodation ship. Converted to an interim helicopter support ship in 1964 (commissioned on 23 June). The Royal Navy's first helicopter support ship. Specially selected for economy and simplicity of conversion, her upper deck was stripped and reinforced to provide a miniature flight deck, and helicopter support facilities installed. Can carry up to six Wessex helicopters. She provides an important forward position and her helicopters are able to operate at greater ranges from their main support base. She constitutes a valuable trial ship in which the lessons learned in operation will be useful in the projected conversion of the "Tiger" class cruisers as helicopter carriers and in the construction of the new helicopter support ship.

Photographs
A larger photograph of *Lofoten*, L 3027, a port bow oblique aerial view showing helicopter on board, appears in the 1964-65 edition.

BOOM DEFENCE VESSELS (Netlayers)

MANDARIN

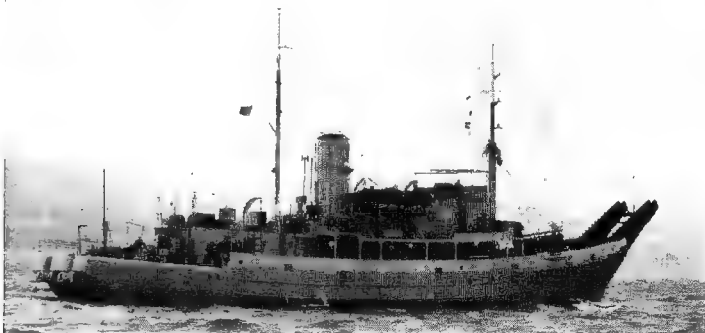
1965, Official

2 "Wild Duck" Class**MANDARIN**

Displacement: 950 tons standard (official figures)
 Dimensions: 168 (excluding horns) × 36½ feet
 Machinery: Davey Paxman diesels, variable pitch propeller
 Complement: 24 (6 officers, 6 petty officers, 12 ratings)

PINTAIL**General**

Mandarin was the first of a new class of marine service vessels. Launched on 17 Sep. 1963 and handed over on 5 Mar. 1964. Pintail was launched on 3 Dec. 1963. Both built by Cammell Laird & Co. Ltd., Birkenhead. Designed to be used for mooring, salvage and boom work. Previously these three tasks were separately undertaken by specialist vessels, but the new type is able to give all three services. Capable of laying out and servicing the heaviest moorings used by the Fleet and also maintaining booms for harbour defence. Heavy lifting equipment enables a wide range of salvage operations to be performed, especially in harbour clearance work. The special heavy winches have an ability for tidal lifts over the apron of 200 tons.



LAYMOOR

1964, Official

2 "Lay" Class**LAYBURN**

Displacement: Circa 800 tons standard (circa 1,050 tons full load)
 Dimensions: 160 (pp.), 192½ (o.a.) × 34½ × 11½ feet
 Machinery: Steam reciprocating, 2 shafts, I.H.P.: 1,300=14 kts.
 Boilers: 2 Foster Wheeler "D" type (see Engineering)
 Complement: 2 officers, 29 to 34 ratings

LAYMOOR**General**

Both built by Wm. Simons & Co. Ltd. (Simons-Lobnitz Ltd.). The first boom defence vessels to be designed and built since the Second World War. Laymoor was the first and the "name" ship of her class. Layburn, which cost £565,000 was launched on 14 Apr. 1960 and completed on 7 July 1960. Laymoor which cost £562,000 was launched on 6 Aug. 1959 and accepted by the Royal Navy on 9 Dec. 1959, in addition to minor salvage work and the towing of net sections, can lay and maintain the latest types of underwater and surface boom defences, first class moorings and navigational buoys. Designed for either naval or civilian manning. Lifting capacity is much greater than that of predecessors, improvements in standards of accommodation enable them to be comfortably operated both in the tropics and in cold climates.

Engineering

The main machinery consists of two forced draught boilers, sited in line astern and fired from the centre position, working at 200 lb. per square inch pressure and each capable of evaporating 26,000 lbs. per hour, and a steam reciprocating engine with three cylinders, the diameters being 14½ inches, 25 inches and 44 inches, and the stroke 24 inches, designed to develop 1,300 indicated horsepower.

Photographs

A photograph of Layburn appears in the 1962-63 to 1964-65 editions.

19 "Bar" Class**3 Ardrosson Dockyard Co. Ltd.,**

BARBECUE P 214 19 Dec. 1944
BARCAROLE P 287 14 Mar. 1945
BARTIZAN P 261 20 May 1943

3 Blyth D.D. & S.B. Co.,

BARBAIN P 201 8 Jan. 1940
BARBICAN P 243 14 Mar. 1938
BARNSTONE P 297 25 Nov. 1939

1 Ferguson Bros. Ltd., Port Glasgow

BARHILL P 204 26 Nov. 1942

1 Hall Russell & Co. Ltd., Aberdeen

BARRAGE P 254 2 Dec. 1937

4 John Lewis & Sons Ltd., Aberdeen

BARFIELD P 244 28 July 1938
BARFOOT P 202 25 Sep. 1942
BARGLOW P 216 9 Nov. 1942
BARNARD P 241 1 July 1942

2 Lobnitz & Co. Ltd., Renfrew

BARCLIFF P 207 10 May 1940
BARNDALE P 215 30 Nov. 1939

1 Philip & Son Ltd., Dartmouth

BARFOIL P 294 18 July 1942

4 Wm. Simons & Co. Ltd., Renfrew

BARFOAM P 282 8 Sep. 1942
BARFOSS P 200 17 Feb. 1942
BARMOND P 232 24 Dec. 1942
BARRINGTON P 259 15 Nov. 1940

Displacement: 750 tons standard (919 to 1,000 tons full load)
 Dimensions: 150 (pp.), 173½ (o.a.), 182 (horns) × 32½ × 11½ feet
 Machinery: Triple expansion, I.H.P.: 850 11.75 kts. Sea speed 9 kts.
 Boilers: 2 S.E. (200 lbs. per sq. in.)
 Fuel: 214 tons coal
 Radius: 3,000 miles
 Complement: 32

Boom Defence Vessels -continued-

BARNDALE

1965, Dr. Giorgio Arra



BARFOSS (Degaussing Rangelaying Vessel)

1963, J. W. Kennedy

"Bar" Class—continued**General**

Built under the 1936, 1937, 1939 and Second World War Estimates. These vessels have a bow lift of 27 to 70 tons. Launch dates are given after their names above. Barnehurst was returned from the Royal Netherlands Navy in 1955. Barcarole, Barcliff, and Barndale are Port Auxiliary Service Craft. Barbecue, Barfield, Barfoot, Barfoss and Barglow are also civilian manned. Barfoss is a Degaussing Rangelaying vessel. Second World War losses: Barflake, Barlight.

Photographs

Photographs appear of Barndale in the 1951-52 to 1957-58 editions, and of Barhill in the 1958-59 to 1964-65 editions.

Class

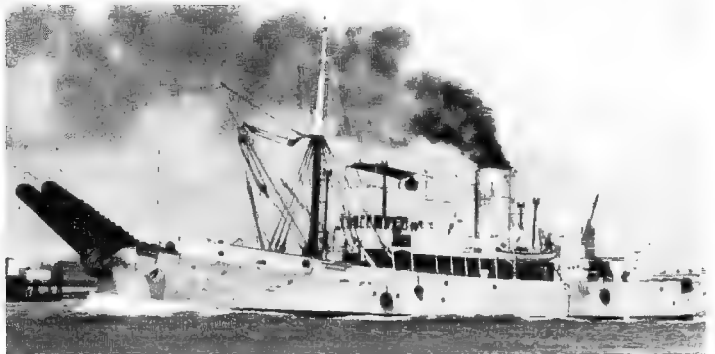
Barilla and Barndale were used for Ship Target Trials in 1949-50. Barstake was transferred to Burma (on loan to the Rangoon Port Commission since 1946) but was returned to the Royal Navy at the end of 1959 at Singapore and put up for sale in 1960. Barbour, Bardell and Barricade were discarded.

Transfers

Barbrake and Barcross were transferred to South Africa, and Barbarian, Barbette (first of this name in the class, launched on 15 Dec. 1937) and Barfair to Turkey. Barcock was on charter to Belgium, but was returned to the Royal Navy on 24 Aug. 1949. Baron was transferred to Ceylon in 1958 (purchased by the Colombo Port Commission).

Disposals

Barberry, Barbrook, Barcombs, Barford, Baritone, Barlane, Barlow, Barmill, Barneath and Barnwell were deleted from the Navy List in 1958. Barilla and Baronia were discarded in 1959 and Barholm in 1960. Barbette (second of this name in the class, accepted into service on 12 July 1943), Barbridge, Barcastle, Barcock, Barcote, Barcroft, Bardolf, Barlake, Barsing, Barsound, Barthorpe and Barrier were for disposal in 1962. Barclose and Barspear were stricken from the Navy List in 1963 when Barwind, Barking and Barbourne were also scheduled for disposal. Barbastel, Barfount, Barkis, Barleycorn, Barmouth, Barnaby, Barnehurst, Barova, Barranca and Barthead were listed for disposal in 1964 and have been sold.



MOORPOUT

1963, J. W. Kennedy

4 "Moor" Class

MOORHEN A 489 MOORLAND A 491 MOORPOUT P 223 MOORSMAN P 284

Displacement: Moorhen, Moorput; 650 tons standard (900 tons full load); Moorland, 600 tons standard (800 tons full load)
 Dimensions: Moorhen, Moorput: 149 (pp.), 159 (o.a.) hull × 30 × 12 feet (196 o.a. horns); Moorland: 135 (pp.), 145 (o.a.) hull × 30 × 12 feet
 Machinery: I.H.P.: 500=9 kts.

General

Built in 1938-46. Displacement and dimensions vary. Employed as Boom Defence Vessels. Boom Working Vessels, Mooring Vessels and Salvage Vessels. Fitted with salvage pumps, air compressors and diving equipment. Moorsman and Moorput are of the larger type built by H.M. Dockyard, Chatham. Moorland was built by Goale Shipbuilding & Repair Co. Ltd. Moorhen, Moorland and Moorput are Port Auxiliary Service Craft at Malta, Gibraltar and Devonport, respectively. Moorsman, in the Clyde, is also civilian manned.

Disposals

Moorale was sold in 1961. Moorburn, Moorcock, Moorfield, Moorfire, Moorgrass, Moorhill, Moormyrtle and Moorside were for disposal in 1962. Moorsess and Moorfowl were stricken from the list in 1963. Moorfly and Moorgrieve have also been sold.

ROYAL YACHT



BRITANNIA

1963, courtesy Godfrey H. Walker, Esq.

BRITANNIA

Displacement: 3,990 tons light (4,961 tons full load)
 Measurement: 5,769 tons gross
 Dimensions: Length: 360 feet (pp.), 380 feet (w.l.), 412½ feet (o.a.) Beam: 55 feet. Draught: 15½ (mean at load), 17 (max.) feet
 Machinery: Single reduction geared steam turbines. 2 shafts. S.H.P.: 12,000–21 kts. (approx.) continuous cruising speed, 22–75 kts. max. (trials)
 Boilers: 2
 Radius: 2,100 miles at 20 kts., 2,400 miles at the economical speed of 18 kts., 3,000 miles at 15 kts.
 Oil fuel: 330 tons (can be increased to 490 tons with auxiliary fuel tanks)
 Complement: 271

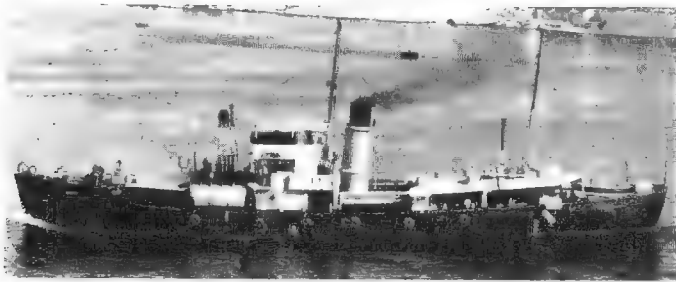
General

This vessel was designed as a medium sized naval hospital ship to be used by Her Majesty The Queen in time of peace as a Royal Yacht. Pennant No. A 00. Built by John Brown & Co. Ltd., Clydebank. Ordered in Feb. 1952. Laid down on 16 June 1952. Launched on 16 Apr. 1953. Completed on 14 Jan. 1954. She has endurance sufficient to enable her to undertake long ocean voyages, modified cruiser stern, and raked bow. Her construction conforms to mercantile practice. The complete bridge structure is constructed of aluminium, and the funnel is also of aluminium. The ship is fitted with Denny-Brown single fin stabilisers to reduce roll in bad weather from 20 deg. to 6 deg. Cost £2,098,000. To enable her to pass under the bridges of the St. Lawrence Seaway when she visited Canada, the top 20 feet of her mainmast and the wireless aerial on her foremast were hinged in Nov. 1958 so that they can be lowered as required. Her two 3-pdr. saluting guns were removed.

Photographs

Larger aerial photographs appear in the Addenda of the 1958-59 edition and in the 1959-60 edition, and another, starboard view, in the 1960-61 to 1962-63 editions.

TRAWLERS



SKOMER

1962, A. & J. Pavia

8 "Isles" Class
(Tank Cleaning Vessels)

2 Ardrossan Dockyard Co. Ltd., Ardrossan COLL GRAEMSAY	1 A. & J. Inglis Ltd., Glasgow SWITHA	3 Apr. 1942
7 Apr. 1942		
3 Aug. 1942		

2 Cook, Weldon & Gemmell Ltd., Beverley BERN LUNDY	3 John Lewis & Sons Ltd., Aberdeen CALDY FOULNESS SKOMER	31 Aug. 1943 23 Mar. 1943 17 June 1943
2 May 1942		
29 Aug. 1942		

Displacement: 560 tons standard (770 tons full load)
 Dimensions: 150 (pp.), 164 (o.a.)×27½×14 feet
 Machinery: Triple expansion. 1 shaft. I.H.P.: 850–12 kts.
 Boilers: 1 cylindrical
 Coal: 183 tons
 Radius: 4,200 miles at 8 kts.

General

Launch dates above. Former minesweeping trawlers converted to tank cleaning vessels. Classed as port auxiliary service craft and have "A" pennant numbers. Sister ship *Bardsey*, also converted, was taken over by Malta Dockyard. For transfers, disposals and other particulars of "Isles" class trawlers see 1961-62 edition.

Photographs

A large photograph of *Graemsay* appears in the 1959-60 to 1961-62 editions.

Disposal

The minesweeping trawler *Rosalind*, of the "Shakespearian" class, on loan to the Royal East African Navy as a training ship, was stricken from the list in 1963.

OCEAN SALVAGE VESSELS

SALVEDA

Displacement: 1,250 tons standard (1,360 tons full load)
 Dimensions: 184 (pp.), 194 (o.a.)×34½×11½ (mean) feet
 Machinery: H.P.: 1,200=12 kts.
 Oil fuel: 150 tons
 Complement: 62

General

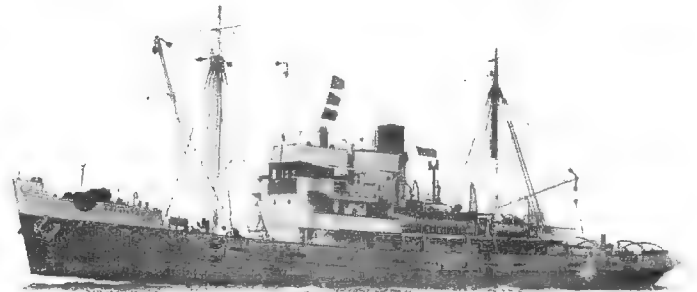
Built by Cammell Laird & Co. Ltd., Birkenhead, and launched on 9 Feb. 1943. Formerly a Royal Fleet Auxiliary ocean salvage vessel on charter to Metal Industries Ltd. Now in the Navy List, in reserve.

Ocean Salvage Vessels—continued



SEA SALVOR

1963, A. & J. Pavia



SALVICTOR

Added 1960, Wright & Logan

PRINCE SALVOR
SALVALOUR

Displacement: 1,440 tons standard (1,700 tons full load)
 Dimensions: 200½ (pp.), 216 (o.a.)×37½×13 (max.) feet
 Machinery: Triple expansion. 2 shafts. I.H.P.: 1,500 12 kts.
 Oil fuel: 310 tons
 Complement: 52 to 72

General

Ocean salvage vessels. All launched in 1942-45. *Prince Salvor*, *Salvalour* and *Sea Salvor* were built by Goole Shipbuilding & Repair Co. Ltd., and launched on 8 Mar. 1943, 2 Nov. 1944 and 22 Apr. 1942, respectively. *Salvestor*, *Salvictor* and *Salvigil* were built by Wm. Simons & Co. Ltd., Renfrew, and launched on 28 Aug. 1942, 11 Mar. 1944 and 30 Apr. 1945, respectively. *Sea Salvor* is a Royal Fleet Auxiliary. *Prince Salvor* and *Salvigil*, formerly on charter to commercial firms, and *Salvalour*, *Salvestor* and *Salvictor* are in the Navy List, in reserve.

Transfers

Salventure is on loan to the Royal Hellenic Navy and is temporarily renamed *Sotir*.

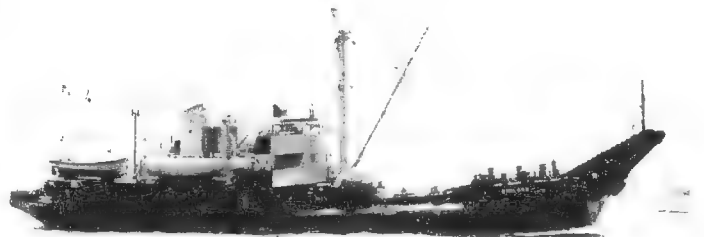
Class

King Salvor was converted to a submarine rescue bell ship in 1953-54 and renamed *Kinofisher*; and was sold to Argentina in Dec. 1960, sailing to Argentina in Apr. 1961 under the new name *Tehuelche* (again renamed *Guardiamarina Zicari* in 1963). *Salvage Duke*, formerly on charter to Turkish Salvage Administration (renamed *Imroz*), was gutted by fire in 1959.

Disposals

Ocean Salvor and *Salvigil* were disposed of in 1960, and others will be discarded.

COASTAL SALVAGE VESSELS



KINLOSS

1963, J. W. Kennedy

KINBRACE
KINGARTH

Displacement: 950 tons standard (1,050 tons full load)
 Measurement: 775 tons gross, 261·6 tons register
 Dimensions: 150 (pp.), 179½ (o.a.)×35½×9½ (mean), 12 (max.) feet
 Machinery: Triple expansion. 1 shaft. I.H.P.: 600 9 kts.
 Boilers: 1 return tube cylindrical (30 ton)
 Complement: 34

General

Coastal salvage vessels. Equipped with horns and heavy rollers. Can lift 200 tons dead weight over the bow. *Uplifter*, built by Smith's Dock Co. Ltd., was the only salvage vessel wearing the White Ensign. She was laid down on 13 Feb. 1943, launched on 29 Nov. 1943, and completed on 6 Apr. 1944. (*Kingarth* wore the White Ensign in 1957). *Dispenser* is on charter to Liverpool & Glasgow Salvage Association. *Succour* and *Swin* are Royal Fleet Auxiliaries wearing the Blue Ensign. *Kinbrace*, *Kingarth* and *Uplifter* are in the Navy List, in reserve. *Kinloss* is in the Port Auxiliary Service as a mooring vessel.

Photographs

photograph of *Kingarth* appears in the 1959-60 and earlier editions, of *Swin* in the 1956-57 and earlier editions, and of *Uplifter* in the 1960-61 to 1962-63 editions.

Disposals

Sister ship *Help* was disposed of, and *Lifeline* was also on the disposal list in 1960.

MINE COUNTERMEASURE SUPPORT AND DIVING TRIALS SHIP



RECLAIM

1960, Wright & Logan

Modified Ocean Salvage Vessel

RECLAIM (ex-Salverdant)

Displacement: 1,200 tons light (1,800 tons full load)
 Dimensions: 200 (pp.), 217½ (o.a.)×38×15½ (max.) feet
 Machinery: Triple expansion, 2 shafts, I.H.P.: 1,500=12 kts
 Oil fuel: 310 tons
 Radius: 3,000 miles
 Complement: 84

Construction

Built by Wm. Simons & Co. Ltd., Renfrew. Engine by Aitchison Blair Ltd. Laid down on 9 Apr. 1946. Launched on 12 Mar 1948. Completed in Oct. 1948. Her construction was based on the design of a "King Salvor" class Royal Navy ocean salvage vessel. She was the first deep diving and submarine rescue vessel to be built as such for the Royal Navy. She is fitted with sonar, radar, echo-sounding apparatus for detection of sunken wrecks, and is also equipped for submarine rescue work.

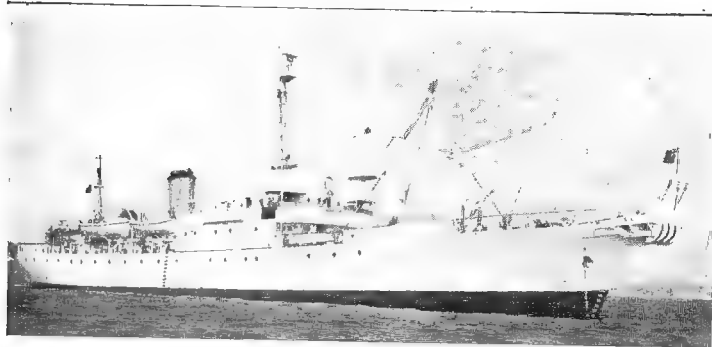
Reclassification

Formerly a tender to H.M.S. Vernon shore establishment at Portsmouth for deep diving experiments, and subsequently a deep diving vessel in the Portsmouth Squadron. Reclassified as a Mine Countermeasure Support and Diving Trials Ship in 1960, and attached to H.M.S. Lochinvar, the minesweeping base at Port Edgar. Carried out deep experiments in the Canary Islands in Jan. to Mar. 1961. Pennant No. A 231.

Disposals of Mining and Diving Tenders

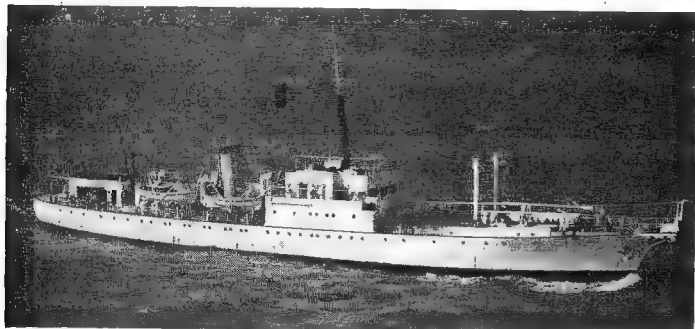
The mining tenders *Nightingale* and *Vesuvius* were scrapped in 1956, the Torpedo recovery vessel *Redwing* in 1957, the experimental trials vessel *Decibel* in 1957, the deep diving tender *Clearwater*, and the mine location tenders *Dipper* and *Diver* in 1959, the diving ship *Deepwater* (ex-German *Walter Holtzapfel*) in 1960, and the tender *Dwarf*, in 1962.

CABLE VESSELS



ST. MARGARETS

Added 1963, Tom Molland Ltd.



BULLFINCH

Added 1959, Skyfotos

2 "Bull" Class

BULLFINCH (19 Aug. 1940)

ST. MARGARETS (Oct. 1943)

Displacement: 2,600 to 2,700 tons full load
 Measurement: 1,524 tons gross, 1,200 tons deadweight
 Dimensions: 228½ (pp.), 252 (o.a.)×36½×16½ (mean) feet
 Guns: 1—4 inch, 4—20 mm. AA. (no armament fitted)
 Machinery: Triple expansion, 2 shafts, I.H.P.: 1,250=12 kts.

General

Cable ships classed as Royal Fleet Auxiliaries. Both built by Swan, Hunter & Wigham Richardson Ltd. Launch dates above. *Bullfrog* and *Bullhead* of this type were transferred to Cable and Wireless service in 1947. A larger, port broadside, view of *Bullfinch* appears in the 1951-52 to 1957-58 editions.

Disposal

The smaller cable vessel *Lasso* was disposed of at the end of 1959.

EXPERIMENTAL TRIALS VESSELS



WHIMBREL

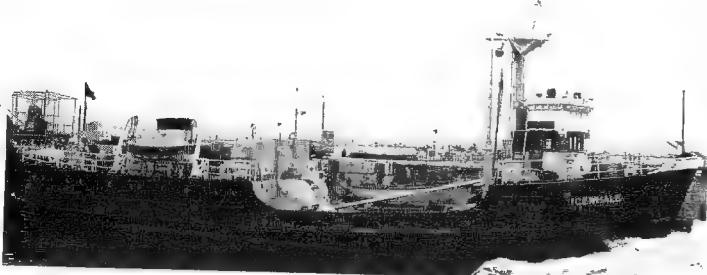
1965, J. W. Kennedy

WHIMBREL (ex-NSC (E) 1012)

Displacement: 300 tons (official figure)
 Dimensions: 190×30×4½ feet

General

Experimental Trials Vessel. Basically of the tank landing craft (LCT(3)) Type.



ICEWHALE

1963, courtesy Godfrey H. Walker, Esq.

ICEWHALE

Displacement: 289 tons standard (350 tons full load)
 Dimensions: 120×24×9 feet
 Machinery: Speed=9 kts.

General Complement:

12 (Master, Mate and 10 ratings)

Experimental Trials Vessel for the Underwater Weapons Establishment, Portland.

SAREPTA (ex-Frieda Peters)

Displacement: 465 tons standard
 Dimensions: 150 (pp.), 157 (o.a.)×27½×12 feet
 Tubes: 4—21 inch

General

Ex-German vessel. Launched in 1920. Multi-purpose torpedo experimental, torpedo-firing, and torpedo recovery vessel. Reclassified as TRV in 1956, but not numbered. A photograph of *Sarepta* appears in the 1951-52 to 1957-59 editions.

TRV 1, TRV 3, TRV 4, *Choctaw* (TRC 4817) and *Mortar* are also employed as recovery vessels. TRV 6 is an experimental trials vessel, and NSB 351, NSB 358 and NSB 359 (ex-LCM (7)s 7037, 7104 and 7110, respectively) are trials vessels.

FLEET TENDERS



BEAULIEU

1965, Wright & Logan

12 New Construction

ABERDOVEY
 ABINGER
 ALNESS

ALNMOUTH
 APPLEBY
 ASHCOTT

BEAULIEU
 BEDDELEERT
 BEMBRIDGE

BIBURY
 BLAKENEY
 BRODDRIK

Measurement: 70 tons gross register
 Dimensions: 75 (pp.), 79½ (o.a.)×18×5½ feet
 Machinery: 1 Lister Blackstone 4-cyl. diesel, B.H.P.: 210=10.5 kts.

General

Built in 1963-65 by Isaac Pimlott & Sons, Northwich, and J. S. Doig Ltd., Grimsby, six by each yard. Built to the requirements of Lloyd's Register. Designed to carry 25 tons deadweight (or up to 3,000 cu. ft.) of stores or 200 standing passengers in addition to two 21 inch torpedoes each weighing 1½ tons. The Royal Navy intends to build 60 new fleet tenders over a period of ten years to replace the old MFVs.

MFV Types

118 Motor Fishing Vessels are listed as Port Auxiliary Service Craft. Employed for various subsidiary duties serving warships and in the dockyards, they are of four types viz:

MFV 2 to 436
 MFV 609 to 944
 MFV 1004 to 1257
 MFV 1526 to 1574

Length: 61½ feet
 Length: 45 feet
 Length: 75 feet
 Length: 90 feet

53 in port auxiliary service
 24 in port auxiliary service
 36 in port auxiliary service
 5 in port auxiliary service

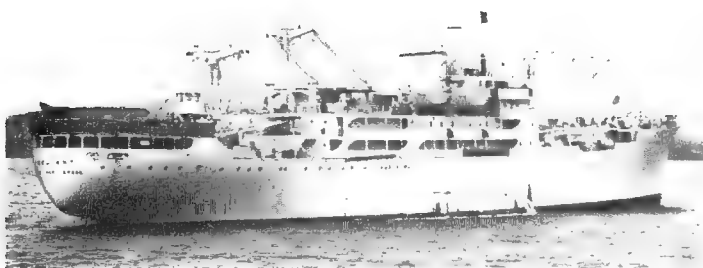
General

MFV 1044 was armed with 1—40 mm. Bofors forward (in place of mast) and 1—20 mm. Oerlikon on the after superstructure. MFV 206 was at Kilindini (Royal East African Navy). MFV 1151, *Squirrel*, and MFV 1080, *Watchful*, were replaced as Fishery Protection Gunboats by an inshore minesweeper and a motor launch (replaced by an inshore minesweeper) with those names; see earlier pages.

Disposals

MFV 270, 2041 and 1564 were discarded in 1957. MFV 1161 was removed from the Navy List in 1959. 56 others were stricken in 1960, MFV 32 and 1189 in 1961, ten in 1962 including MFV 36, 174 and 637, and 17 in 1963. MFV 1036 was wrecked in Apr. 1963 and sold. MFV 76, 77, 101, 133, 301 and 867 were for disposal in 1964.

FLEET SUPPLY SHIPS



RELIANT 1963, Official

3 Projected Stores Support Ships (AFS)

General
Ordered on 7 Dec. 1964. Being designed by Swan Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne to meet specific requirements. One ship to be built on the Clyde by associates Barclay Curle & Co. and two ships on the Tyne. All will be fitted with Sulzer type main machinery and auxiliary machinery manufactured by Wallsend Slipway & Engineering Co. Ltd. Lifts and mobile appliances will be provided for handling stores internally, and a new replenishment at sea system and a helicopter landing platform for transferring loads at sea.

2 New Construction Replenishment Ships,

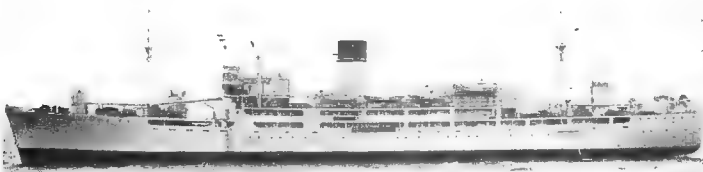
General
It was officially announced on 24 Jan. 1963 that two 19,000-ton replenishment ships would be ordered. On 13 Aug. 1963 the builders were named: Scotts' Shipbuilding & Engineering Co., Greenock; and Harland & Wolff, Belfast. They will have lifts for armaments and stores, and helicopter platforms for transferring loads at sea.

1 Air Stores Support Ship

RELIANT (ex-Somersby) A 84
Displacement: 13,730 tons
Measurement: 9,290 tons *deadweight (summer)*
Dimensions: 440 (pp.), 468½ (o.a.)×61½×26½ feet
Machinery: Doxford diesel, B.H.P.: 8,250=18 kts.
Complement: 110 officers and men

General
Built by Sir James Laing & Sons Ltd., Sunderland. Engined by Hawthorn Leslie. Completed in 1954. Former grain carrier which traded for two years, working between the Gulf of Mexico and the United Kingdom, before purchase from the Roper Shipping Company. Converted for her now role at North Shields. Sailed from Chatham on 4 Nov. 1958 for the Far East as the Royal Navy's first air/victualling stores issuing ship capable of replenishing aircraft carriers at sea. Has an endurance of 50 days' steaming at 16 knots, and carries 40,000 different patterns of aircraft spares and general naval stores. Has six holds and the latest automatic tensioning winch for transfer of stores to aircraft carriers in unfavourable weather. Fully air-conditioned for service in the tropics. Her conversion was based on the concept that aircraft carriers should be able to spend more time at sea, independent of shore bases. Originally named *Somersby*. Renamed *Reliant* in 1958.

As refitted *Reliant* has a helicopter landing platform built over the poop deckhouse with netting surrounds.



RESURGENT 1960, Official



RETAINER Added 1960, Wright & Logan

2 Fleet Replenishment Ships.

RESURGENT (ex-Changchow) A 280
Displacement: 14,000 tons (approx.) official estimate
Measurement: *Resurgent*, 9,403 tons gross. *Retainer*, 9,393 tons gross
Dimensions: 451 (pp.), 477½ (o.a.)×62×29 (max.) feet
Machinery: Doxford diesel, 1 shaft. B.H.P.: 6,500=15 kts.
Oil fuel: 925 tons

General
Former passenger and cargo motor vessels, both built for the China Navigation Co. by Scotts' Shipbuilding and Engineering Co. Ltd., Greenock, and completed in 1951 and 1950, respectively. *Retainer* was formerly a passenger and cargo liner along the China coast. She was purchased in 1952 and converted into a naval storeship during autumn 1954-April 1955 by Palmers Hebburn Co. Ltd., where further conversion was carried out Mar.-Aug. 1957 to extend her facilities as a stores ship, including the fitting out of holds to carry naval stores, the installation of lifts for stores, the provision of extra cargo handling gear and new bridge wings. *Resurgent* was taken over on completion for employment as a fleet replenishment ship.

RETAINER (ex-Chungking) A 329

Fleet Supply Ships—continued



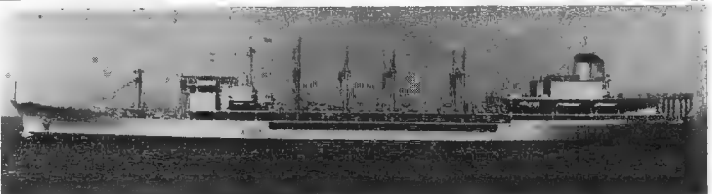
FORT DUNVEGAN 1960, Tom Molland Ltd.

6 "Fort" Class

FORT CHARLOTTE A 236 FORT DUQUESNE A 229 FONT ROSALIE A 186
FORT DUNVEGAN A 160 FORT LANGLEY A 230 FORT SANDUSKY A 316
Displacement: 3,700 tons *light*, 9,788 tons *normal* (14,000 tons *full*)
Measurement: 10,300 tons *deadweight*
Dimensions: 416 (pp.), 424½ (w.l.), 441½ (o.a.)×57×27 feet
Machinery: Triple expansion, I.H.P.: 2,500=11 kts.
Boilers: 2 Babcock & Wilcox

General
All launched in 1944. *Fort Charlotte* and *Fort Dunvegan* are Stores Support Ships. *Fort Duquesne* (helicopter landing platform aft) is an Air Stores Support Ship. *Fort Langley*, *Fort Rosalie* and *Fort Sandusky* are Armament Support Ships. Rated as Royal Fleet Auxiliaries. Similar in type to the Maintenance Ships of the "Mull" and "Head" Classes, see earlier page.
Fort Beauharnois and *Fort Constantine* were stricken from the list in 1963.
A photograph of *Fort Duquesne* appears in the 1953-54 to 1958-59 editions.

FLEET REPLENISHMENT TANKERS



OLYNTHUS (helicopter landing platform aft) 1965, Official

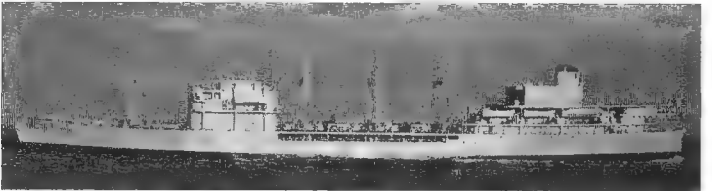
3 "Olynthus" Class

Name	No.	Builders	Launched
OLEANDER A	124	Swan Hunter & Wigham Richardson Ltd., Wallsend	19 Nov. 1964
OLNA A	123	Hawthorn Leslie (Shipbuilders) Ltd., Hebburn	28 July 1965
OLYNTHUS A	122	Hawthorn Leslie (Shipbuilders) Ltd., Hebburn	10 July 1964

Displacement: 33,200 tons *full load* (official figures)
Measurement: 22,300 tons *deadweight*
Dimensions: 610 (pp.), 648 (o.a.)×84×34 feet
Machinery: Double reduction geared turbines=19 kts.
Boilers: 2 Babcock & Wilcox
Complement: 87 (25 officers and 62 ratings)

General
Largest and fastest ships to join the Royal Fleet Auxiliary Service. Of an entirely new class designed by Hawthorn Leslie and Swan Hunter to meet specified requirements. Machinery for *Oleander* was manufactured by Wallsend Slipway & Engineering Co. Ltd., and for *Olina* and *Olynthus* by Hawthorn Leslie (Engineers) Ltd. Designed for support of the Fleet, they are fitted with handling gear for transferring fuels and stores by jackstay and derricks whilst steaming at speed. A helicopter landing platform and hangar are provided to enable helicopter carrying ships to collect stores by air. Sophisticated machinery control systems are incorporated, including bridge control of ahead revolutions. Specially strengthened for operations in ice. Accommodation of a very high standard is fully air conditioned. Additionally, *Olina* is fitted with a transverse bow thrust unit for improved manoeuvrability in confined waters and with a new design of replenishment at sea system.

The old fast replenishment tanker *Olina* (launched in 1944) is officially stated to be now in reserve, but as the second of the above "Olynthus" class ships has been named *Olina* presumably the older ship of that name will be scrapped (see photograph and full particulars on page 307 of the 1964-65 edition, and in earlier editions).



TIDESPRING 1963, Official

2 Later "Tide" Class

TIDESPRING A 75	TIDEPOOL A 76
Displacement: 8,531 tons <i>light</i> (25,931 tons <i>full load</i>)	
Measurement: 17,400 tons <i>deadweight</i> , 14,130 tons <i>gross</i>	
Dimensions: 550 (pp.), 583 (o.a.)×71×32 feet	
Machinery: Double reduction geared turbines, S.H.P.: 15,000=17 kts.	
Boilers: 2 Babcock & Wilcox	
Complement: 115 (30 officers and 85 ratings)	

General
Built by Hawthorn Leslie, Hebburn. The machinery was installed by Hawthorn Leslie (Engineers) Ltd. Highly specialised ships for the fuelling and storing of naval vessels at sea and capable of high performance under rigorous service conditions. Their all-round capability is enhanced by the provision of a helicopter landing platform and hangar. *Tidespring* was laid down on 24 July 1961, launched on 3 May 1962, and accepted into service on 18 Jan. 1963. *Tidepool* was laid down on 4 Dec. 1961 and launched on 11 Dec. 1962.

Fleet Replenishment Tankers—continued



TIDESURGE

1962, courtesy Godfrey H. Walker Esq.

3 "Tide" Class

TIDEFLOW (ex-Tiderace) A 97 TIDESURGE (ex-Tiderange) A 98 TIDEREACH A 96

Displacement: 15,000 tons (26,000 tons full load)
 Measurement: 17,700 tons deadweight, 13,150 tons gross
 Dimensions: 550 (pp.), 583 (o.a.) \times 71 \times 32 (max.) feet
 Machinery: Double reduction geared turbines, S.H.P.: 15,000=17 kts.

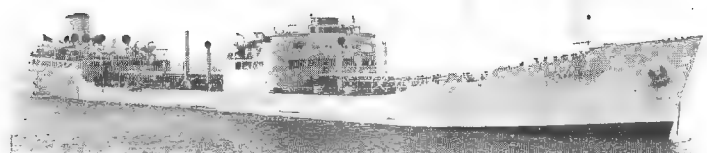
General

Tidereach, launched by Swan, Hunter & Wigham Richardson Ltd., Wallsend-on-Tyne, on 2 June 1954, and completed on 30 Aug. 1955, was the first of the new class of Fleet Replenishment Tankers. The main machinery was manufactured by the Wallsend Slipway Company. Designed for the support of the Fleet and replenishment under way at sea. Capacious (15,000 tons of fuel cargo) and fitted with modern handling gear for transferring food, stores, ammunition, oil and jet aircraft fuels by jackstay and derricks. Oil cargo can be discharged at high rate to ships on either beam or astern, while steaming at speed. Tiderange (renamed Tidesurge in 1958) was launched at I. L. Thompson & Sons Ltd., Sunderland, on 30 Aug. 1954, the main machinery of both being manufactured by North Eastern Marine Engineering Co. Ltd., Wallsend-on-Tyne. A fourth ship, Tide Austral, was built for Australia, but operated by the Royal Navy until 1962 when she was taken over by the Royal Australian Navy and renamed Supply on 7 Sep.

Photographs

A photograph of Tidereach appears in the 1959-60 and earlier editions.

OILERS



APPLELEAF

1959, Official

7 "Leaf" Group

APPLELEAF (ex-M.V. George Lyras) A 83

Displacement: 22,980 tons full load
 Measurement: 16,850 tons deadweight, 11,588 tons gross, 6,559 tons net
 Dimensions: 526 (pp.), 577 $\frac{1}{2}$ (o.a.) \times 68 \times 29 $\frac{1}{2}$ mean summer draught
 Machinery: Doxford 6-cyl diesel, 119 r.p.m. B.H.P.: 6,800=14 kts.
 Oil fuel: 1,480
 Complement: 67

General

The M.V. George Lyras, built by Bartram & Co. Ltd. and formerly owned by Marine Enterprises Ltd., was launched on 22 Apr. 1955, completed in Sep. 1955, and taken over by the Royal Navy on 17 Apr. 1959 on a long term bareboat charter for service as a Royal Fleet Auxiliary and renamed R.F.A. Appleleaf, thus reviving the name of an R.F.A. oiler which served the Royal Navy in both World Wars and was scrapped at the end of the Second World War after 30 years of service.

Appleleaf was the first of a number of 16,000-18,000 ton tankers chartered by the Royal Navy to replace the smaller "Dale" and "Wave" classes of R.F.A. freight tankers.



BRAMBLELEAF

Added 1963, Tom Molland, Ltd.

BAYLEAF (ex-London Integrity) A 79

BRAMBLELEAF (ex-London Loyalty) A 81

Measurement: 17,960 tons d.w., 12,123 tons gross, 7,042 tons net
 Dimensions: 526 (pp.), 556 $\frac{1}{2}$ (o.a.) \times 71 $\frac{1}{2}$ \times 30 feet
 Machinery: Doxford 6-cyl. diesel, B.H.P.: 6,800=14 $\frac{1}{2}$ kts. (Bayleaf), 14 kts. (Brambleleaf)
 Oil fuel: 1,470 tons

General

Both built by Furness S.B. Co. Ltd. Bayleaf was launched on 28 Oct. 1954 and completed in Apr. 1955. Brambleleaf was completed in Jan. 1954. Both from London & Overseas Freighters Ltd., 22 May 1959. Photograph of Bayleaf in the 1959-60 edition (Addenda).

CHERRYLEAF (ex-M.V. Laurelwood) A 82

Measurement: 18,560 tons d.w., 12,402 tons gross, 7,338 tons net
 Dimensions: 512 (pp.), 544 (o.a.) \times 72 $\frac{1}{2}$ \times 30 $\frac{1}{2}$ mean summer draught
 Machinery: Doxford 6-cyl diesel, B.H.P.: 6,800=13 $\frac{1}{2}$ kts.
 Oil fuel: 1,540 tons

General

Built by Sir James Laing & Sons Ltd., Sunderland. Launched on 28 May 1953. Completed in Dec. 1953. From Molasses & General Transport Co. Ltd., 15 May 1959.

Oilers—continued



ORANGELEAF

1963, Wright & Logan

ORANGELEAF (ex-M.V. Southern Satellite) A 80

Measurement: 17,475 tons d.w., 12,481 tons gross, 6,949 tons net
 Dimensions: 525 (pp.), 556 $\frac{1}{2}$ (o.a.) \times 71 $\frac{1}{2}$ \times 30 $\frac{1}{2}$ (mean) feet
 Machinery: Doxford 6-cyl. diesel, B.H.P.: 6,800=15 kts.
 Oil fuel: 1,610 tons

General

Built by Furness Shipbuilding Co. Ltd., Haverton Hill on Tees. Launched on 8 Feb. 1955. Completed June 1955. From South Georgia Co. Ltd., 25 May 1959.

PEARLEAF A 77

Displacement: 23,900 tons
 Measurement: 18,045 tons d.w., 12,139 tons gross, 7,216 tons net
 Dimensions: 535 (pp.), 568 (o.a.) \times 71 $\frac{1}{2}$ \times 30 feet
 Machinery: Rowan Doxford 6-cyl. diesels, B.H.P.: 8,800=15 $\frac{1}{2}$ kts.

General

Built by Scotstoun Yard of Blythswydd Shipbuilding Co. Ltd., for Jacobs and Partners Ltd., London. Launched on 15 Oct. 1959 and completed in Jan. 1960. Chartered by the Royal Navy on completion. Can carry three different grades of cargo.



PLUMLEAF

1965, Wright & Logan

PLUMLEAF A 78

Displacement: 24,920 tons
 Measurement: 18,900 tons deadweight, 12,500 tons gross (approx.)
 Dimensions: 534 (pp.), 560 (o.a.) \times 72 \times 30 feet
 Machinery: N.E. Doxford 6-cyl. diesels, B.H.P.: 9,350=15 $\frac{1}{2}$ kts.

General

Built by Blyth D.D. & Eng. Co. Ltd. Launched 29 Mar. 1960. Completed July



EDDYNESS

1963, Wright & Logan



EDDYFIRTH

Added 1960, J. W. Kennedy

3 "Eddy" Class

EDDYFIRTH (10 Sep. 1953) A 26

EDDYNESS (22 Oct. 1953) A 295

EDDYROCK (16 Dec. 1952) A 198

Displacement: 1,960 tons light (4,160 tons full load)
 Measurement: 2,157 to 2,300 tons gross, 2,095 to 2,200 deadweight
 Dimensions: 270 (pp.), 286 (o.a.) \times 44 \times 17 $\frac{1}{2}$ feet
 Machinery: 1 set triple expansion, 1 shaft. I.H.P.: 1,750=12 kts.
 Boilers: 2 oil burning cylindrical

General

Royal Fleet Auxiliaries. Launch dates above. Constructed on the combined transverse and longitudinal system of framing and classed 100 A1 at Lloyd's for the carriage of petroleum in bulk. Cargo capacity: 1,650 tons oil. Only Eddyfirth and Eddyrock appear in the Spring 1965 Navy List. Eddyness is in reserve.

Engineering

The main propelling machinery was built by Lobnitz & Co. Ltd., Renfrew and boilers by Caledon Shipbuilding & Engineering Co. Ltd., Dundee.

Disposals

Eddybay, Eddybeach, Eddycliff, Eddycreek and Eddyreef were disposed of in 1963 and 1964.

Eddyfirth	Lobnitz & Co. Ltd., Renfrew	10 Feb. 54
Eddyness	Blyth Dry Docks & Shipbuilding Co. Ltd., Blyth	11 Oct. 54
Eddyrock	Blyth Dry Docks & Shipbuilding Co. Ltd., Blyth	7 June 53

Oilers—continued



WAVE RULER 1965, courtesy Godfrey H. Walker, Esq.

7 "Wave" Class

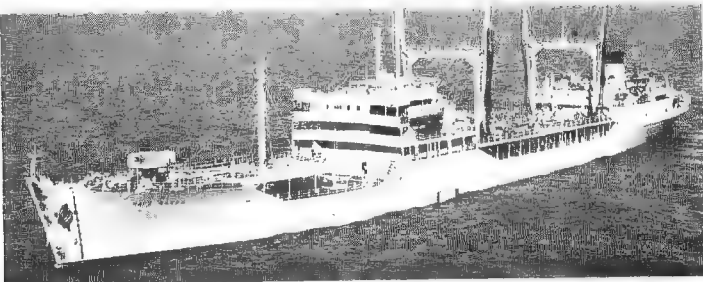
Name	Builders	Launched
A 242 WAVE BARON (ex-Empire Flodden)	3 Furness S.B. Co. Ltd., Haverton, Hill-on-Tees	19 Feb. 1946
A 212 WAVE RULER (ex-Empire Evesham)		17 Jan. 1946
A 211 WAVE SOVEREIGN		20 Nov. 1945
A 265 WAVE CHIEF (ex-Empire Edgehill)	1 Harland & Wolff, Ltd. (Govan), Glasgow	4 Apr. 1946
A 246 WAVE DUKE (ex-Empire Mars)	3 Sir James Laing & Sons Ltd., Sunderland	16 Nov. 1964
A 119 WAVE LAIRD (ex-Empire Dunbar)		3 Apr. 1946
A 207 WAVE PRINCE (ex-Empire Herald)		27 July 1945



WAVE PRINCE 1963, courtesy Godfrey H. Walker, Esq.

Displacement: 4,550 to 4,750 tons light, 8,200 tons standard (16,476 to 16,485 tons full load)
Measurement: 11,900 tons deadweight
Dimensions: 465½ (pp.), 492½ (o.a.)×64½×28½ feet
Guns: Light AA. in wartime
Machinery: Double reduction geared turbines. S.H.P.: 6,800=15 kts.
Boilers: 3-drum type

General
Classed as Royal Fleet Auxiliaries. Launch dates above. Wave Baron, Wave Chief, Wave Prince and Wave Ruler are fleet replenishment ships, the other three being freighters. The turbines are of Metrovick type in Wave Baron, Wave Chief, Wave Duke and Wave Laird and Parsons type in the others. Wave Baron and Wave Prince were refitted and modernised in 1961-62. Wave Victor is on loan to the Air Ministry as a hulk at Gan Island. Wave Duke and Wave Laird are in reserve and may be hulked.



WAVE BARON 1961, Official

Disposals.
Wave Commander and Wave Liberator were scrapped in 1959. Wave Conqueror and Wave King were sold in 1960 when Wave Emperor, Wave Governor and Wave Premier were also stricken from the list. Wave Protector was hulked at Malta. Wave Regent was broken up and Wave Monarch was sold to foreign interests in 1961. Wave Knight and Wave Master were disposed of in 1963-64.



SURF PATROL (see top of Col. 2) 1963, A. & J. Pavia

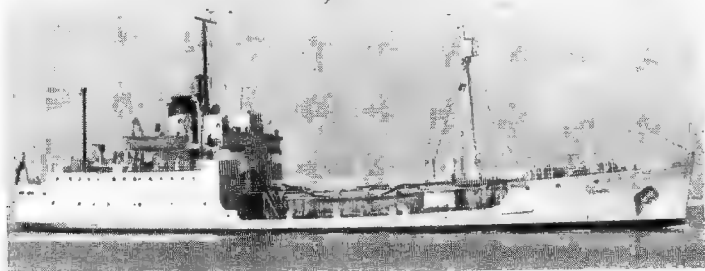
Oilers—continued



SURF PIONEER Skyfotos

2 "Surf" Class

SURF PATROL (ex-Tatry) A 357	SURF PIONEER (ex-Beskidy) A 365
Displacement: 15,800 tons	
Measurement: 7,742 tons gross, 11,500 tons deadweight	
Dimensions: 445 (pp.), 469½ (o.a.)×60½×27½ (max.) feet	
Machinery: Doxford 4-cyl. diesels. B.H.P.: 4,250=13.75 kts.	
General Taken over by Great Britain whilst under construction by Bartram's, Sunderland, for Poland, at the time of the Korean War emergency. Launched on 7 Feb. and 23 Apr. 1951, respectively. Classed as Royal Fleet Auxiliaries. Both laid up in reserve at Devonport.	



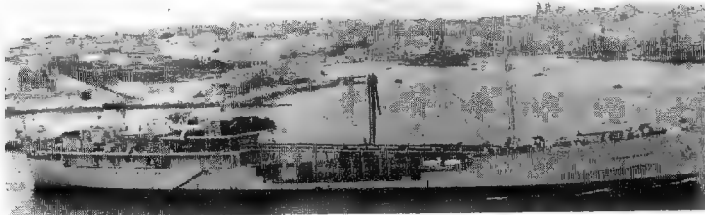
TEAKOL 1963, J. W. Kennedy

4 Later "Ol" Class

BIRCHOL (19 Feb. 1946) A 127	ROWANOL (ex-Cedarol, ex-Ebonol, 15 May 1946) A 284
OKAL (28 Aug. 1946) A 300	TEAKOL (14 Nov. 1946) A 167
Displacement: 2,670 tons	
Measurement: 1,050 tons deadweight	
Dimensions: 218 (pp.), 232 (o.a.)×39×15½ feet	
Machinery: Triple expansion. I.H.P.: 1,140=11 kts.	
Complement: 26	

General
All built by Lobnitz & Co. Ltd., Renfrew. Launch dates above. Classed as Royal Fleet Auxiliaries.

Photographs
A photograph of Oakol appears in the 1959-60 edition, and of Rowanol in the 1958-59 and earlier editions.



BROWN RANGER 1962, A. & J. Pavia

4 "Ranger" Class

1 Caledon Shipbuilding & Engineering Co. Ltd., Dundee	3 Harland & Wolff Ltd. (Govan), Glasgow
GOLD RANGER A 130 12 Mar. 1941	BLACK RANGER A 163 22 Aug. 1940
	BLUE RANGER A 157 29 Jan. 1941
	BROWN RANGER A 169 12 Dec. 1940
Measurement: 3,313 to 3,417 tons gross. Gold Ranger 3,788 tons deadweight, others 3,435 to 3,781 tons deadweight	
Dimensions: Gold Ranger 339½ (pp.), 355½ (o.a.)×47×20 feet	
Others 349½ (pp.), 365½ (o.a.)×47×20 feet	
Machinery: Burmeister & Wain diesels. B.H.P.: 2,750=12 kts.	

General
Classed as Royal Fleet Auxiliaries. Launch dates above. The funnel in these ships is on the port side. All are fitted with special derrick on the beam to facilitate fuelling at sea. Gray Ranger was lost during the Second World War.

Photographs
A photograph of Black Ranger appears in the 1960-61 and 1961-62 editions.

Disposals
Sister ship Green Ranger was officially deleted from the list in 1965.

Disposals of other classes of Oilers
Olna, A 216, is now in reserve after 20 years' service and will be disposed of in due course (a new Olna is being completed).

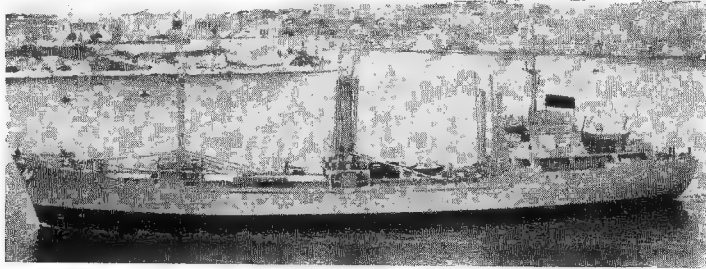
Of the Later "Dale" class, Ennerdale was scrapped, Easedale sold, and Eaglesdale for disposal in 1959. Cedarale, Derwentdale, Dewdale and Dingledale were disposed of in 1960, and Echodale went to reserve in 1961 to await disposal.

Of the Early "Dale" class Arndale and Broomdale were disposed of in 1960, and Abbeydale was for disposal in 1961. Bishopdale is in reserve, it was officially stated in 1965.

The five old oilers of the "Ol" class, Belgol, Celerol, Fortol, Prestol and Serbol, were all disposed of in 1958.

The six old oilers of the smaller "Ol" class, Bozol, Elderol, Elmol, Larchol, Limol and Philol, were all stricken from the Royal Fleet Auxiliary List in 1959, and were sold or otherwise disposed of. War Hindoo, latterly used only as a hulk, was scrapped.

STORE CARRIERS



BACCHUS 1963, A. & J. Pavia

BACCHUS 2 "Bacchus" Class

Displacement: 2,740 tons (light), 7,958 tons (full load)
Measurement: 4,960 tons gross, 2,500 tons net, 5,218 tons deadweight
Dimensions: 350 (pp.), 379 (o.a.)×55×22 (max.) feet
Machinery: Swan Hunter Sulzer diesel, 1 shaft, B.H.P.: 5,500=15 kts.
Oil fuel: 720 tons
Complement: 57

General

Built by Henry Robb Ltd., Leith, for the British India Steam Navigation Co. Taken over by the Royal Navy on completion on long term bare boat charter and operated as Royal Fleet Auxiliaries. Rated as dry cargo ships. Bacchus was completed in Sep. 1962 and Hebe in May 1962. All crew accommodation and engines aft as in tankers.

Disposals

The previous ship named Bacchus, a store carrier and distilling vessel launched in 1926, was disposed of in 1962 at Singapore.

Of the surviving aircraft transports Skua was for disposal in 1962, and Blackburn became a hulk tender for the Clyde Division, Royal Naval Reserve.

THOMAS GRANT

Displacement: 409 tons
Dimensions: 113½×25½×10 feet
Machinery: 2 diesels. Speed=9 kts.

General

Local store carrier. Completed in 1953. Built by Charles Hill & Sons Ltd., Bristol. A photograph appears in the 1957-58 and earlier editions. Turned over to the Port Auxiliary Service in 1959 under Dockyard administration at Portsmouth.



ROBERT MIDDLETON 1963, J. W. Kennedy

ROBERT DUNDAS (28 July 1938) A 204 ROBERT MIDDLETON (29 June 1938) A 241

Displacement: 900 tons light (1,900 tons full load)
Measurement: 1,000 tons deadweight
Dimensions: 210 (pp.), 222½ (o.a.)×35×13½ (mean) feet
Machinery: Atlas Polar Diesel, 1 shaft, B.H.P.: 960=10.5 kts.
Oil fuel: 60 tons
Complement: 17

General

Both built by Grangemouth Dockyard Co. Ltd. Machinery by British Auxiliaries Ltd., Govan. Launch dates above. Royal Fleet Auxiliaries rated as coastal store carriers.

Disposals

The petrol carriers Petrobus and Rippledyeke were sold in 1959-60. The petrol carriers Airstrite and Nasprite were sold in 1963-64.

DEGAUSSING VESSELS



DGV 403 1963, J. W. Kennedy

3 Ex-Motor Minesweepers

DGV 400 (ex-MMS 1002) DGV 401 (ex-MMS 1003) DGV 403 (ex-MMS 1011)
Displacement: 254 tons standard (360 tons full load)
Dimensions: 126 (pp.), 140 (o.a.)×26×12½ (max.) feet
Machinery: Gardner diesel, B.H.P.: 500=10 kts.
Oil fuel: 55 tons
Complement: 21

General

Former large motor minesweepers of the "126-ft." Type, 1001 series, of wooden construction, converted into Degaussing Vessels.

Disposal

Sister ship DGV 402 (ex-MMS 1004) was officially stricken from the list in 1963.

ARMAMENT CARRIERS



KINTERBURY Added 1963, Tom Molland Ltd.

THROSK
KINTERBURY A 378
Displacement: 1,490 tons standard (1,770 tons full load)
Measurement: 600 tons deadweight
Dimensions: 185 (pp.), 199½×34½×13 feet
Machinery: Triple expansion, 1 shaft, I.H.P.: 900=11 kts.
Coal: 154 tons

General

Launched in 1943 and 1944, respectively. Both built by Philip & Son Ltd. Rated as naval armament carriers. Converted in 1959 with hold stowage and a derrick for handling guided missiles for attending and servicing the guided weapons trials ship Girdle Ness. A photograph of Throsc appears in the 1957-58 and earlier editions.

ENFIELD A 395 MAXIM A 377 SNIDER A 375

GATLING A 376
Displacement: 604 to 663 tons
Measurement: 240 tons
Dimensions: 131½ to 144½×25×8 feet
Machinery: Reciprocating, I.H.P.: 500=9 kts.
Complement: 13

General

All built by Lobnitz & Co. Ltd., Renfrew, and rated as naval armament carriers. Chattenden was reduced to reserve in 1961 and used as a dumb-derrick lighter.

BALLISTA BOWSTRING FLINTLOCK OBUS
BLOW PIPE CATAPULT MATCHLOCK SPEAR

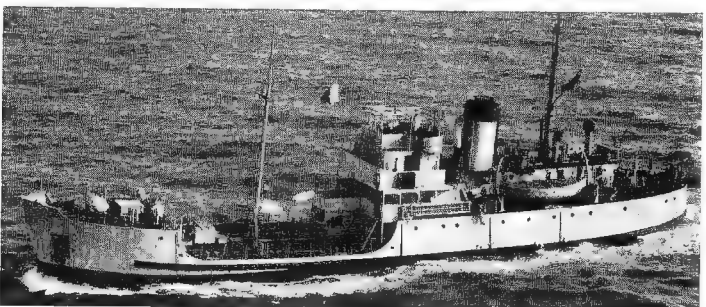
General

The above, of various displacements and other particulars are all naval armament vessels in the Port Auxiliary Service.

Disposal

The naval armament and general store carrier Amherst was sold in 1963.

WATER CARRIERS



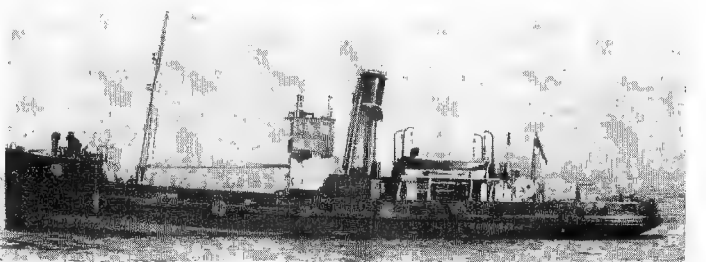
SPA 6 "Spa" Class Added 1963

2 Charles Hill & Sons 4 Philip & Son Ltd., Dartmouth
Ltd., Bristol SPA (11 Oct. 41) A 192
SPALAKE (10 Aug. 46) A 260 SPABECK (21 June 43) A 227
SPAPOOL (28 Feb. 46) A 222 SPABROOK (24 Aug. 44) A 224
SPABURN (5 Jan. 46) A 257

Displacement: 1,219 tons
Measurement: 500 tons deadweight
Dimensions: 160 (pp.), 172 (o.a.)×30×12 feet
Machinery: Triple expansion, I.H.P.: 675=9 kts.
Boiler: 1
Coal: 90 tons

General

Spabek, formerly high test peroxide carrier for the experimental submarine Explorer, is now in reserve. A photograph of Spalake appears in the 1954-55 to 1957-58 editions.



FRESHLAKE Added 1963, courtesy Godfrey H. Walker, Esq.

12 "Fresh" Class
FRESHBURN FRESHLAKE FRESHPOOL FRESHTARN
FRESHENER FRESHMERE FRESHSPRAY FRESHWATER
FRESHFORD FRESHPOND FRESHSPRING FRESHWELL

Displacement: 594 tons
Dimensions: 126½×25½×10½ (max.) feet
Machinery: Triple expansion, I.H.P.: 450=9 kts.

General

Freshener, Freshspray, Freshspring and Freshwater were converted from coal to oil fuel, it was stated in 1961. A photograph of Freshpond appears in the 1951-52 to 1953-54 editions. Freshbrook and Freshnet were stricken from the list in 1963.

TUGS

Tugs—continued



TYPHOON

1963, Wright & Logan

1 "Typhoon" Class

TYPHOON A 95

Displacement: 800 tons (approx.) standard (1,380 tons full load)
Dimensions: 200 (o.a.), 181 (pp.)×40×13 feet
Machinery: 2 12-cyl. turbocharged vee type diesels, 1 shaft. B.H.P.: 2,750—over 16 knots

General

The first of a new class of ocean tugs. Royal Fleet Auxiliary. Built by Henry Robb & Co. Ltd., Leith. Launched on 14 Oct. 1958. Completed in 1960. Diesels manufactured by Vickers-Armstrongs Ltd., Barrow-in-Furness. An improved version of the "Bustler" design. The machinery arrangement of two diesel engines geared to a single shaft was an innovation for naval ocean tugs. Controllable pitch propeller, 150 r.p.m. Fitted with the latest equipment for fire fighting, salvage and ocean rescue, with a heavy mainmast and derrick attached.



CONFIANCE

1963, J. W. Kennedy

2 "Con" Class

CONFIANCE (15 Nov. 1955) A 289

CONFIDENT (17 Jan. 1956) A 290

Displacement: 760 tons (loaded)
Dimensions: 140 (pp.), 154½ (o.a.)×35×11 feet
Machinery: 4 Paxman diesels, 2 shafts. B.H.P.: 1,600—13 kts.
Complement: 29+13 salvage party

Construction

Built by A. & J. Inglis, Ltd., Glasgow. Launch dates above. *Confiance* was completed on 27 Mar. 1956. Fitted with 2,500 mm. diameter Stone Kamewa controllable pitch propellers.



SEA GIANT

1963, A. & J. Pavia

3 "Samson" Class

SAMSON (14 May 1953) A 390

SEA GIANT (2 June 1954) A 288

SUPERMAN (23 Nov. 1953)

Measurement: 850 tons gross
Dimensions: 180×37×15½ feet
Machinery: Triple expansion, 2 shafts

General

All built and engined by Alexander Hall & Co. Ltd., Aberdeen. Launch dates above. A photograph of *Samson* appears in the 1957-58 and earlier editions.

2 "Envoy" Class

ENCORE (Dec. 1944) A 379

ENVOY (Feb. 1944) A 165

Displacement: 868 tons standard (1,332 tons full load)
Measurement: 762 tons gross
Dimensions: 160 (pp.), 174½ (o.a.)×34½×15½ (max.) feet
Machinery: Triple expansion, I.H.P.: 1,700—12 kts.
Boilers: 2 cylindrical
Oil fuel: 398 tons
Complement: 33

General

All built by Cochrane & Sons, Ltd., Selby. Launch dates above. In wartime these ships carried 1—3 inch AA. gun, 2—20 mm. AA. guns, and 2 M.G. *Enticer* was lost on 21 Dec. 1946. *Enforcer* and *Enigma* were stricken from the list in 1963.



EXPERT

1963, A. & J. Pavia

4 "Nimble" Class

CAPABLE (Hall Russell, 22 Nov. 1945) A 508

EXPERT (Fleming & Ferguson, 1944)

CAREFUL (A. Hall & Co. 23 Oct 1945) A 293

NIMBLE (Fleming & Ferguson, 4 Dec. 1941) A 223

Displacement: 890 tons standard (1,190 tons full load)
Dimensions: 165 (pp.), 175 (o.a.)×35½×13½ feet
Machinery: Triple expansion, 2 shafts, I.H.P.: 3,500—16 kts
Boilers: 2, of 3-drum type
Oil fuel: 300 tons

Engineering

Builders and launch dates above. *Capable* was fitted experimentally with controllable pitch propellers.



REWARD

Added 1964, A. & J. Pavia

6 "Bustler" Class

BUSTLER (4 Dec. 1941) A 240

REWARD (13 Oct. 1944) A 264

CYCLONE (ex-Growler, 10 Sep. 1942) A 111

SAMSONIA (1 Apr. 1942) A 218

TURMOIL (14 July 1944)

WARDEN (28 June 1945) A 309

Displacement: 1,118 tons standard (1,630 tons full load)
Dimensions: 190 (pp.), 205 (o.a.)×38½ (hull), 40½ (belt)×13 (mean), 16½ (max.) feet
Machinery: 2 Atlas Polar 8-cyl. diesels, 1 shaft. B.H.P.: 4,000—16 kts.
Oil fuel: 405 tons
Range: 17,000 miles
Complement: 42

General

All built by Henry Robb, Ltd., Leith. Launch dates above. *Growler*, temporarily renamed *Caroline Moller*, while on long term charter, then renamed *Castle Peak*, was returned to R.F.A. service in 1957, then renamed *Welshman* and chartered to the United Towing Co. Ltd., and again renamed *Cyclone* on return to Royal Fleet Auxiliary service in 1964. Most of this class, including *Reward*, to United Towing Co. Ltd. in 1963, and *Turmoil*, to Overseas Towing & Salvage Co., have been chartered by commercial undertakings. *Bustler* wears the Blue Ensign. Of this class, *Hesperia* was lost during the Second World War, and H.M.S. *Mediator*, the last tug to sail under the White Ensign and not the Blue Ensign of the Royal Fleet Auxiliary Service, was paid off in 1964 to be sold.

8 "Assurance" Class

ANTIC (Mar. 1943) A 141

JAUNTY (June 1941) A 140

CAUTIOUS (ex-Prudent, Aug. 1940) A 385

PROSPEROUS (June 1942) A 254

EARNER (ex-Ernest, July 1943) A 209

RESTIVE (Sep. 1940) A 286

HENGIST (Dec. 1941) A 110

SAUCY (Oct. 1942) A 386

Displacement: 700 tons (1,055 tons full load)
Measurement: 597 tons gross
Dimensions: 142½ (pp.), 157 (o.a.)×33×14½ feet
Machinery: Triple expansion, I.H.P.: 1,350—12 kts.
Boiler: 1 cylindrical
Oil fuel: 262 tons
Complement: 31

General

All built by Cochrane & Sons, Ltd., Selby. Launch dates above. In wartime these ships carried 1—3 inch AA. guns, 1—20 mm. AA. gun and 2 M.G. Second World War losses of the class were *Adept*, *Adherent* (original), *Assurance*, *Horsa* and *Sesame*. *Assiduous* was transferred to Ceylon in 1959. *Adherent* (the second) and *Tryphon* were disposed of in 1960. *Alligator* was sold in 1961. *Allegiance* was lost in a typhoon on 4 Sep. 1962 while under charter.

Other Tugs

There are a number of other tugs employed on harbour service and in H.M. Dockyards, including the new diesel-electric paddle tugs *Dexterous*, *Director*, *Faithful*, *Favourite*, *Forceful*, *Grinder* and *Griper*; the twin-screw diesel dockyard tugs *Accord*, *Adept*, *Agile* and *Advice*; the medium berthing tugs *Airedale*, *Alston*, *Boxer*, *Cairn* and *Dalmation* ("Dog" class); and the harbour berthing tugs *Agatha*, *Agnes*, *Alice*, *Audrey* and *Betty* ("Girl" class).

Also the small fleet servicing and coastal harbour tugs *Empire Ace* (ex-*Diligent*), *Empire Demon*, *Empire Fred*, *Empire Netta*, *Empire Rosa*, *Energetic* (ex-*Empire Edward*) and *Frisky* (ex-*Empire Rita*), not all of the same type. *Empire Plane* was sold in 1958, and *Empire Zona* was deleted from the list.

The following tugs are also in the Port Auxiliary Service:—*Bombshell*, *Cannon*, *Chainshot*, *Destiny*, *Diver*, *Driver*, *Eminent*, *Energy*, *Expeller*, *Fidget*, *Flamer*, *Foremost*, *Freedom*, *Grapeshot*, *Handmaid*, *Impetus*, *Integrity*, *Prompt*, *Regard*, *Resolve*, *Security*, *Tampeon*, *Truncheon*, *Vagrant*, and *Weasel*.

LIST OF PENNANT NUMBERS

A few of the ships listed below are on the sales list or have been earmarked for disposal, but their pennant numbers have been retained in this edition for reference and identification until they are actually broken up; and a few ships listed are not yet completed.

The pennant numbers of many submarines were changed on 1 May 1961, several "A" class and "T" class boats in the S09 to S27 range having been renumbered in the S61 to S74 range to enable all the post-war built conventional submarines to be numbered from S01 to S20 and onwards. Nuclear-powered submarines were at the same time renumbered in a new S101 series.

Aircraft Carriers, Cruisers, Destroyers, Frigates, Submarines, Minelayers, etc.

R Flag Superior:	F Flag Superior:	F 99 Lincoln	S Flag Superior:
R 05 Eagle	F 08 Urania	F 101 Yarmouth	S 01 Porpoise
R 06 Centaur	F 09 Troubridge	F 102 Zest	S 02 Roqual
R 07 Albion	F 10 Aurora	F 103 Lowestoft	S 03 Narwhal
R 08 Bulwark	F 14 Leopard	F 104 Dido	S 04 Grampus
R 09 Ark Royal	F 15 Euryalus	F 106 Brighton	S 05 Finwhale
R 12 Hermes	F 18 Galatea	F 107 Rothesay	S 06 Cachalot
R 38 Victorious	F 19 Terpsichore	F 108 Londonderry	S 07 Sealion
	F 26 Petard	F 109 Leander	S 08 Walrus
	F 27 Lynx	F 113 Falmouth	S 09 Oberon
	F 28 Cleopatra	F 114 Ajax	S 10 Odin
	F 29 Verulam	F 115 Berwick	S 11 Orpheus
C Flag Superior:	F 32 Salisbury	F 117 Ashanti	S 12 Olympus
C 20 Tiger	F 34 Puma	F 119 Eskimo	S 13 Osiris
C 24 Sheffield	F 36 Whitby	F 121 Tumult	S 14 Onslaught
C 34 Lion	F 37 Jaguar	F 122 Gurkha	S 15 Otter
C 35 Belfast	F 38 Arethusa	F 124 Zulu	S 16 Oracle
C 99 Blake	F 39 Naiad	F 125 Mohawk	S 17 Ocelot
	F 40 Sirius	F 126 Plymouth	S 18 Otus
	F 41 Volage	F 127 Penelope	S 19 Opposum
	F 42 Phoebe	F 129 Rhyll	S 20 Opportune
D Flag Superior:	F 43 Torquay	F 131 Nubian	S 21 Onyx
D 01 Caprice	F 44 Tenacious	F 133 Tartar	S 28 Token
D 02 Devonshire	F 45 Minerva	F 138 Rapid	S 32 Tiptoe
D 05 Daring	F 47 Danae	F 156 Tuscan	S 33 Trump
D 06 Hampshire	F 48 Dundas	F 159 Wakeful	S 34 Taciturn
D 07 Caesar	F 50 Venus	F 185 Relentless	S 35 Tapir
D 09 Dunkirk	F 51 Grafton	F 187 Whirlwind	S 37 Talent
D 10 Cassandra	F 52 Juno	F 189 Termagant	S 38 Teredo
D 12 Kent	F 53 Undaunted	F 196 Urchin	S 40 Excalibur
D 15 Cavendish	F 54 Hardy	F 197 Grenville	S 41 Alaric
D 16 London	F 56 Argonaut	F 200 Ursa	S 42 Tabard
D 19 Glamorgan	F 59 Chichester	F 390 Loch Fada	S 43 Amphion
D 20 Fife	F 61 Llandaff	F 428 Loch Alvie	S 47 Astute
D 22 Aisne	F 62 Pellew	F 429 Loch Fyne	S 49 Artemis
D 25 Carysfort	F 63 Scarborough		S 53 Truncheon
D 31 Broadsword	F 65 Tenby	F 628 Loch Killisport	S 55 Thermopylae
D 35 Diamond	F 67 Tyrian	F 645 Loch Ruthven	S 61 Acheron
D 43 Matapan	F 72 Wizard	F 647 Alert	S 62 Aurochs
D 64 Scorpion	F 73 Eastbourne		S 63 Andrew
D 68 Barrosa	F 76 Virago	N Flag Superior:	S 64 Anchorite
D 73 Cavalier	F 77 Blackpool	N 11 Minstrel	S 65 Alcide
D 84 Saintes	F 78 Blackwood	N 12 Gossamer	S 66 Alderney
D 85 Cambrian	F 80 Duncan	N 13 Miner III	S 67 Alliance
D 86 Agincourt	F 83 Ulster	N 16 Miner VI	S 68 Ambush
D 96 Crossbow	F 84 Exmouth	N 17 Miner VII	S 69 Auriga
D 97 Corunna	F 85 Keppel	N 18 Mindful	S 72 Aeneas
D 106 Decoy	F 88 Malcolm	N 26 Plover	S 77 Tireless
D 108 Dainty	F 91 Murray	N 70 Manxman	S 96 Artful
D 114 Defender	F 94 Palliser	K Flag Superior	S 101 Dreadnought
D 119 Delight		K 07 Lofoten	S 102 Valiant
D 126 Diana	F 97 Russell		S 103 Warspite
D 154 Duchess	F 98 Orwell		

PENANT NUMBERS—continued

Support Ships, Landing Ships, Coastal Minesweepers, Inshore Minesweepers, etc.

A Flag Superior:

A 108 Triumph
 A 134 Rame Head
 A 146 Protector
 A 153 Ausonia
 A 158 Duncansby Head
 A 164 Adamant
 A 185 Maidstone
 A 187 Forth
 A 191 Berry Head
 A 194 Tyne
 A 200 Vidal
 A 225 Mull of Kintyre
 A 231 Reclaim
 A 262 Hartland Point
 A 302 Dalrymple
 A 303 Dampier
 A 307 Cook
 A 311 Owen
 A 387 Girdle Ness

P Flag Superior:

P 190 Laymoor
 P 191 Layburn
 P 200 Barfoss
 P 201 Barbain
 P 202 Barfoot
 P 204 Barhill
 P 214 Barbecue
 P 216 Barglow
 P 218 Barleycorn
 P 219 Barmouth
 P 223 Moorpout
 P 227 Barkis
 P 232 Barmond
 P 234 Barova
 P 237 Barnaby
 P 238 Barnehurst
 P 240 Barrhead
 P 241 Barnard
 P 243 Barbican
 P 244 Barfield
 P 254 Barrage
 P 259 Barrington
 P 261 Bartizan
 P 276 Barbastel
 P 282 Barfoam
 P 284 Moorsman
 P 287 Barcarole
 P 290 Barfount
 P 294 Barfoil
 P 297 Barnestone

L Flag Superior:

L 369 Meon
 L 3003 Anzio
 L 3004 Fearless
 L 3005 Intrepid
 L 3016 Dieppe
 L 3029 Chaser
 L 3043 Messina
 L 3044 Narvik
 L 3515 Stalker
 L 3516 Striker

M Flag Superior:

M 1101 Coniston
 M 1103 Kilmorey
 M 1104 Alverton
 M 1105 Clyde
 M 1106 Appleton
 M 1107 Beachampton
 M 1108 Bevington
 M 1109 Killiecrankie
 M 1110 Bildeston
 M 1112 Warsash
 M 1113 Brereton
 M 1114 Brinton
 M 1115 Bronington
 M 1116 Burnaston
 M 1117 Thames
 M 1118 Calton
 M 1119 Carhamton
 M 1120 Caunton
 M 1122 Chilcompton
 M 1123 Clarbeston
 M 1124 St. David
 M 1125 Cuxton
 M 1126 Montrose
 M 1128 Derriton
 M 1129 Oulston
 M 1130 Highburton
 M 1131 Hickleton
 M 1132 Blaxton
 M 1133 Bossington
 M 1135 Fenton
 M 1136 Curzon
 M 1137 Flockton
 M 1138 Floriston
 M 1140 Gavinton
 M 1141 Glasserton
 M 1145 Dufton
 M 1146 Venturer
 M 1147 Hubberston
 M 1148 Ilmington
 M 1149 Badminton

M 1150 Invermoriston
 M 1151 Iveston
 M 1153 Kedelston
 M 1154 Kellington
 M 1155 Monkton
 M 1156 Kemerton
 M 1157 Kirkliston
 M 1158 Laleston
 M 1159 Lanton
 M 1160 Letterston
 M 1161 Leverton
 M 1162 Kildarton
 M 1163 Lullington
 M 1164 Maddiston
 M 1165 Maxton
 M 1166 Nurton
 M 1167 Repton
 M 1169 Penstun
 M 1170 Picton
 M 1172 Thankerton
 M 1173 Mersey
 M 1174 Puncheston
 M 1175 Northumbria
 M 1176 Rennington
 M 1177 Roddington
 M 1178 Santon
 M 1179 Sefton
 M 1180 Shavington
 M 1181 Sheraton
 M 1182 Shoulton
 M 1186 Tarlton
 M 1187 Upton
 M 1188 Walkerton
 M 1189 Wasperton
 M 1192 Wilkieston
 M 1193 Wolverton
 M 1194 Woolaston
 M 1195 Wotton
 M 1196 Yarnton
 M 1198 Ashton
 M 1199 Belton
 M 1200 Soberton
 M 1202 Maryton
 M 1203 Dartington
 M 1204 Stubbington
 M 1205 Wiston
 M 1206 Fiskerton
 M 1208 Lewiston
 M 1209 Chawton
 M 1211 Houghton
 M 1216 Crofton
 M 2001 Dingley

M 2002 Aveley
 M 2003 Brearley
 M 2004 Brenchley
 M 2005 Brinkley
 M 2007 Watchful
 M 2008 Squirrel
 M 2009 Chailey
 M 2010 Isis
 M 2603 Arlingham
 M 2610 Boreham
 M 2614 Bucklesham
 M 2616 Chelsham
 M 2618 Cobham
 M 2619 Darsham
 M 2620 Davenham
 M 2621 Dittisham
 M 2622 Downham
 M 2624 Elsenham
 M 2626 Everingham
 M 2627 Felmersham
 M 2628 Flintham
 M 2629 Damerham
 M 2630 Fritham
 M 2631 Glenthams
 M 2635 Haversham
 M 2636 Lasham
 M 2637 Hovingham
 M 2706 Ledsham
 M 2708 Ludham
 M 2712 Neasham
 M 2713 Nettleham
 M 2714 Ockham
 M 2716 Pagham
 M 2717 Fordham
 M 2722 Rackham
 M 2726 Shipham
 M 2727 Saxlingham
 M 2728 Shrivenham
 M 2733 Thakeham
 M 2735 Tongham
 M 2737 Warmingham
 M 2778 Woldingham
 M 2781 Portisham
 M 2783 Odjham
 M 2784 Puttenham
 M 2785 Birdham
 M 2787 Abbotsham
 M 2788 Georgeham
 M 2790 Thatcham
 M 2791 Sandringham
 M 2792 Polsham
 M 2793 Thornham

UNITED STATES NAVY

Administration and Command

Commander-in-Chief:

President of the United States, Mr. Lyndon B. Johnson.

Secretary of the Navy:

Mr. Paul H. Nitze.

Under Secretary of the Navy:

Mr. Robert H. B. Baldwin.

(There are three Assistant Secretaries of the Navy).

Chief of Naval Operations:

Admiral David L. McDonald, U.S.N.

Vice-Chief of Naval Operations:

Admiral Horacio Rivero, Jr., U.S.N.

(There are now six Deputy C.N.O.s and fourteen Assistant C.N.O.s).

Commander-in-Chief, U.S. Atlantic Fleet:

Admiral Thomas H. Moorer, U.S.N.

Commander-in-Chief, U.S. Pacific Fleet:

Admiral Roy L. Johnson, U.S.N.

Naval Attaché and Naval Attaché for Air in London:

Rear-Admiral J. W. O'Grady, U.S.N.

British Naval Attaché in Washington:

Rear-Admiral Peter M. Compston.

Strength of United States Fleet

27 attack and support aircraft carriers.	270	destroyer escorts.
8 amphib. assault ships (carriers).	46	des. esc. transport
7 auxiliary aircraft transports (carriers).	60	nuclear submarines
15 aircraft ferry ships (carriers).	140	submarines.
4 battleships.	11	escorts.
2 command ships.	200	mine craft
40 cruisers.	16	patrol vessels
30 frigates (destroyer leaders).	14	fast patrol boats
360 destroyers.	210	amphibious craft.
10 destroyer minelayers.	300	fleet auxiliaries.
	1,230	service craft

Total: 3,000.

Operational: 1,462 on 30 June 1965 (586 warships and 876 other naval vessels) comprising 888 in commission (406 warships, 135 amphibious vessels and 339 support ships) and 582 in reserve (180 warships and 402 other types including patrol vessels). Official figures.

Ships

All ships are painted light grey overall, except submarines, most of which are painted black, with large serial numbers on the bows, except aircraft carriers.

Aircraft carriers are differentiated by their serial numbers painted on the funnels and identified from the air by the same figures painted prominently on the flight deck forward and aft.

Destroyers carry numbers on their bows, on their sterns, and also on their helicopter platforms for identification from the air.

Submarines carry numbers on their "sails" or conning towers and also on their bows.

Personnel

Navy: 669,992 officers and enlisted men on 30 June 1964; 674,116 on 30 June 1965 684,848 (proposed) on 30 June 1966.

Marine Corps: 190,000 officers and enlisted men on 30 June 1964; 190,069 on 30 June 1965; 193,190 (proposed) on 30 June 1966.

Naval Appropriations

1955: \$ 9,766,000,000	1959: \$ 11,958,000,000	1963: \$ 15,270,000,000
1956: \$ 9,648,000,000	1960: \$ 11,326,000,000	1964: \$ 14,490,000,000
1957: \$ 10,478,000,000	1961: \$ 12,276,411,000	1965: \$ 14,252,000,000
1958: \$ 10,696,000,000	1962: \$ 14,771,000,000	1966: \$ 14,965,100,000

Nomenclature

Aircraft carriers are named mostly after historical naval vessels or battles; heavy cruisers and light cruisers after large cities; destroyer leaders (frigates) after Admirals; destroyers after officers and enlisted men of the Navy and Marine Corps, Secretaries of the Navy, Members of Congress and inventors.

Destroyer escorts and destroyer escort transports are named after Navy men, Marines, or Coast Guard personnel killed in action during the Second World War.

Submarines are named after fish, and marine creatures (ballistic missile submarines after men famous in American history); ocean minesweepers and fleet minesweepers after abstract qualities, etc., and birds; escorts and submarine chasers after small cities and towns.

Submarine tenders are named after pioneers in submarine development and mythological characters; destroyer tenders after geographical valleys, etc; repair ships after mythological characters.

Large seaplane tenders are named after sounds and bays; ammunition ships after volcanoes and ingredients of explosives; transports after flag and general officers; Commandants of the Marine Corps and Marine Corps officers attack transports after counties; inshore minesweepers after seaboard features.

Tank landing ships are named after counties; and medium landing ships, rocket, after rivers.

Small seaplane tenders are named after bays, straits and inlets; submarine rescue vessels after birds; oilers after rivers with Indian names; ocean-going tugs after Indian tribes; and harbour tugs after Indian Chiefs and words of the Indian dialect.

Occasional exceptions to this system will be found.

Ships names are prefaced by "U.S.S." (United States Ship) or "U.S.N.S." (U.S. Naval Ship—non-commissioned ships of the Military Transportation Service).

Term Naval Plan

By 1970 it is planned that there will be:

A fleet of 100 nuclear powered submarines, including 41 armed with Polaris or Poseidon ballistic missiles.

It is intended that eventually there will be:

150 ships with nuclear powered machinery plants; 200 ships armed with surface to air guided missiles; All combatant ships armed with anti-submarine missiles or equipped with anti-submarine aircraft.

1966 New Construction Programme

- 1 Nuclear Powered Guided Missile Frigate, DLGN.
- 6 Nuclear Powered Attack Submarines, SSN.
- 1 Amphibious Assault Ship, LPH.
- 1 Amphibious Transport Dock, LPD.
- 10 Escort Ships, DE.
- 1 Amphibious Force Flagship, AGC.
- 3 Dock Landing Ships, LSD.
- 8 Tank Landing Ships, LST.
- 4 Ocean Minesweepers, MSO.
- 1 Submarine Tender, AS.
- 1 Destroyer Tender, AD.
- 10 Motor Gunboats, PGM.
- 2 Hydrofoil Gunboats, PGH.
- 1 Attack Cargo Ship, AKA.
- 2 Ammunition Ships, AE.
- 1 Combat Store Ship, AFS.
- 1 Fast Combat Support Ship, AOE.
- 2 Replenishment Fleet Oilers, AOR.
- 2 Fast Deployment Logistic Ships, AG.
- 2 Oceanographical Research Ships, AGOR.
- 1 Survey Ship, AGS.
- 1 Salvage Tug, ATS.

1966 Conversion Programme

- 1 Attack Aircraft Carrier, CVA.
- 1 Guided Missile Cruiser, CG.
- 2 Guided Missile Frigates, DLG.
- 5 Destroyers, DD.
- 1 Special Minesweeper, MSS.
- 2 MSTs Tankers, T-AO.

1965 New Construction Programme

- 6 Nuclear Powered Attack Submarines, SSN.
- 1 Amphibious Assault Ship, LPH.
- 2 Amphibious Transports, Dock, LPD.
- 16 Escort Ships, DE.
- 1 Amphibious Force Flagship, AGC.
- 1 Dock Landing Ship, LSD.
- 1 Tank Landing Ship, LST.
- 1 Fleet Ballistic Missile Submarine Tender, AS(FBM). (Deferred).
- 1 Submarine Tender, AS.
- 1 Destroyer Tender, AD.
- 3 Motor Gunboats, PGM.
- 4 Attack Cargo Ships, AKA.
- 2 Ammunition Ships, AE.
- 2 Combat Store Ships, AFS.
- 1 Fast Combat Support Ship, AOE.
- 2 Replenishment Fleet Oilers, AOR.
- 2 Oceanographic Research Ships, AGOR.
- 2 Surveying Ships, AGS.

1965 Conversion Programme

- 1 Transport Submarine, APSS.
- 1 Fleet Ballistic Missile Resupply Cargo Ship, AK (FBM).
- 3 Oilers-Jumboize, AO.
- 2 MSTs Tankers, T-AO.

1964 New Construction Programme

- 6 Nuclear Powered Fleet Ballistic Missile Submarines, SSBN.
- 6 Nuclear Powered Attack Submarines, SSN.
- 3 Amphibious Transports, Dock, LPD.
- 10 Escort Ships, DE.
- 2 Motor Gunboats, PGM.
- 1 Fleet Ballistic Missile Submarine Tender, AS (FBM).
- 1 Destroyer Tender, AD.
- 1 Combat Store Ship, AFS.
- 1 Surveying Ship, AGS.
- 1 Roll-on/Roll-off Cargo Ship, T—LSV (Ro/Ro). (Rescinded).

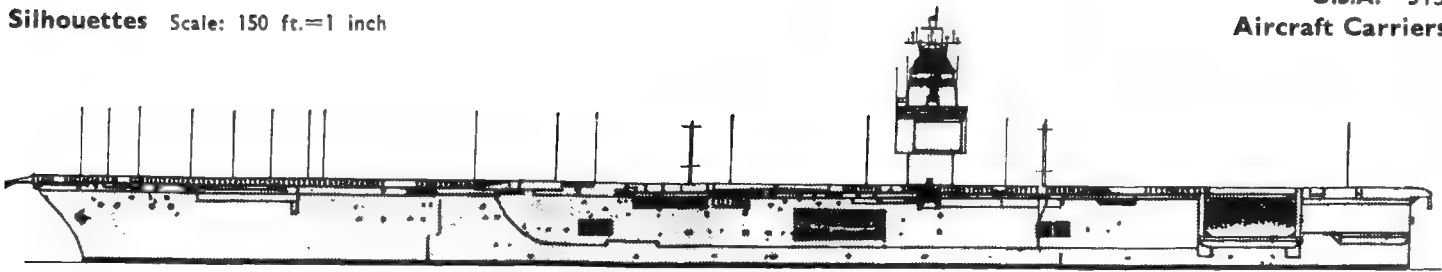
1964 Conversion Programme

- 7 Guided Missile Destroyers, DDG (2 from DL, 5 from DD).
- 19 Destroyers, DD Mark 1 Fleet Rehabilitation and Modernisation.
- 1 Mine Countermeasures Support Ship, MCS. Former LSV.
- 1 Major Communications Relay Ship, AGMR. Former CVE.
- 1 Fleet Ballistic Missile Resupply Cargo Ship, AK (FBM).
- 3 Fast Ammunition Ships, AE.
- 3 Fast Fleet Oilers, AO (JUMBO).

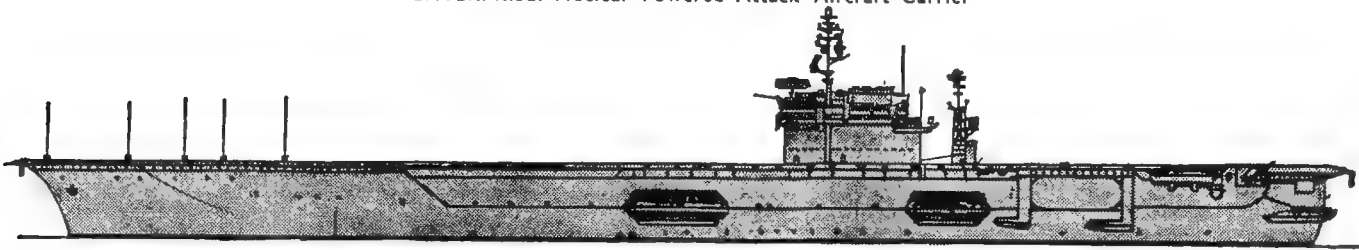
Mercantile Marine

Lloyd's Register of Shipping:

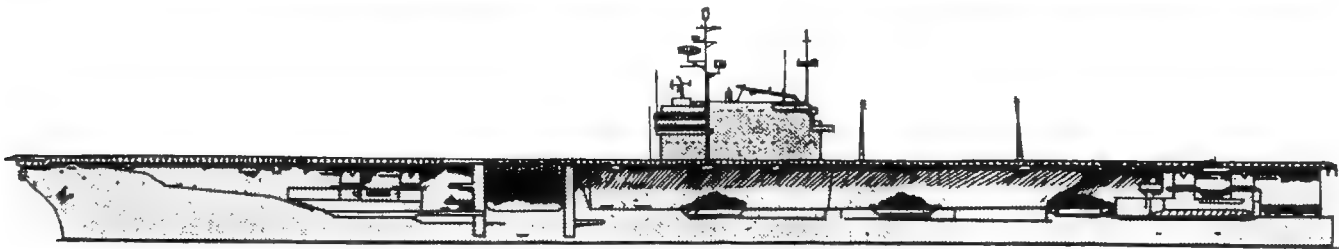
Sea, 3222 vessels of 20,351,334 tons, gross.
Great Lakes, 315 vessels of 2,078,915 tons, gross.
Total: 3,527 vessels of 22,430,249 tons, gross.



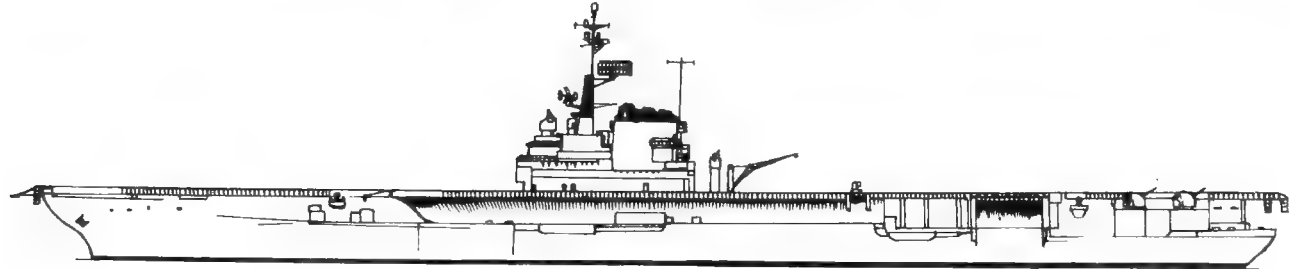
ENTERPRISE. Nuclear Powered Attack Aircraft Carrier



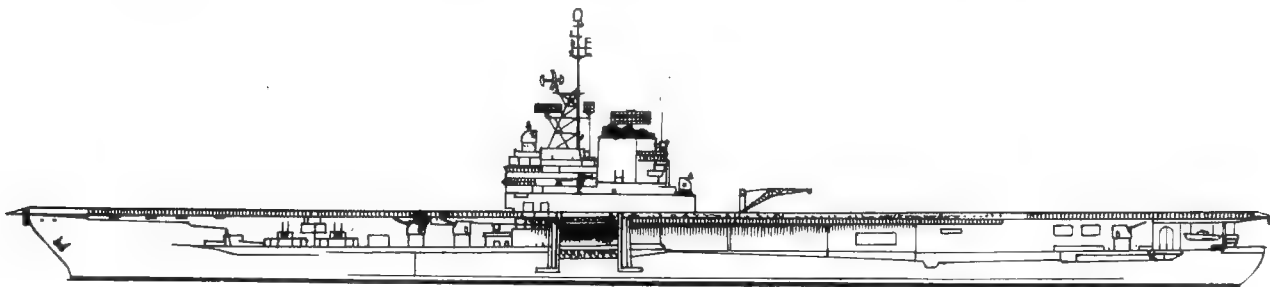
CONSTELLATION, KITTY HAWK



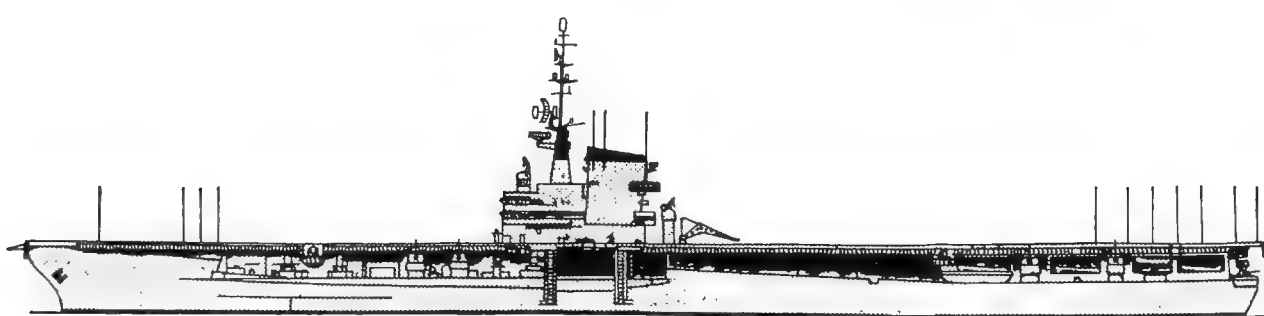
FORRESTAL, INDEPENDENCE, RANGER, SARATOGA



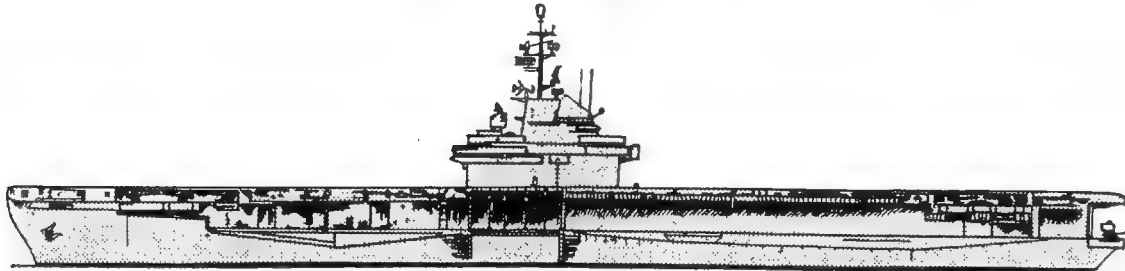
CORAL SEA



MIDWAY



FRANKLIN D. ROOSEVELT

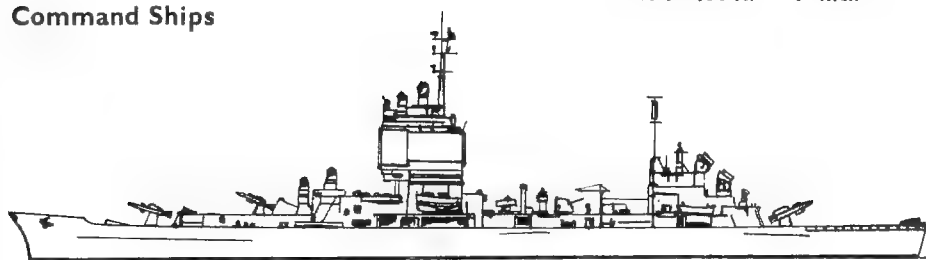


ESSEX Class with angled deck and enclosed bow

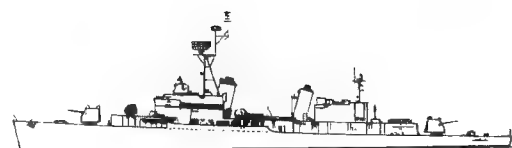
**Heavy Cruisers,
Command Ships**

Silhouettes — continued
Scale : 150 ft. = 1 inch

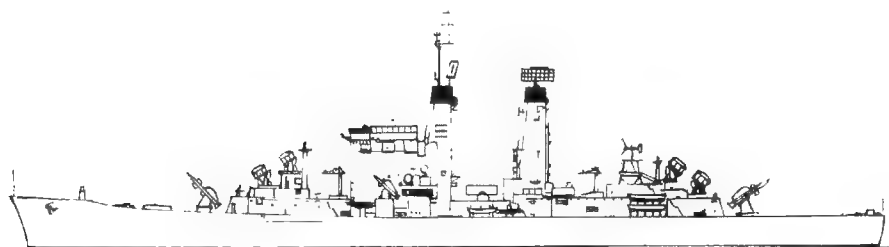
Destroyers



LONG BEACH. Nuclear Powered Guided Missile Cruiser



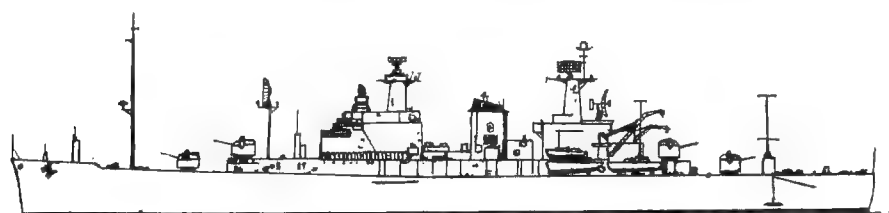
CARPENTER Class FRAM II conversions



ALBANY, CHICAGO, COLOMBUS. Guided Missile Cruisers, converted Heavy Cruisers



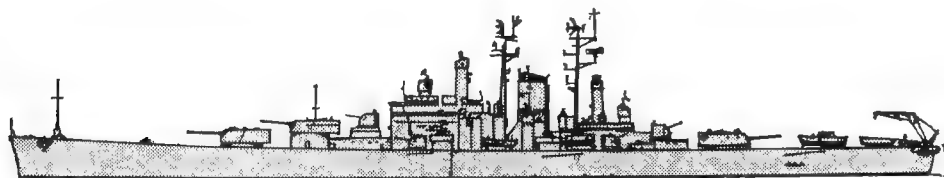
CARPENTER Class



NORTHAMPTON. Command Ship. Originally designed as a Heavy Cruiser



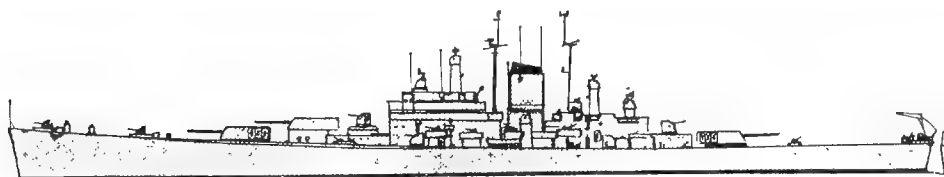
Converted GEARING Class FRAM I



NEWPORT NEWS



GEARING Class FRAM conversions



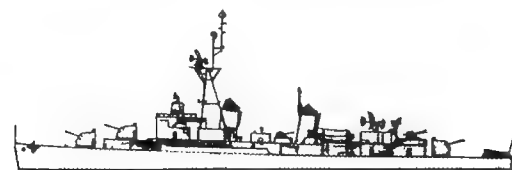
DES MOINES, SALEM



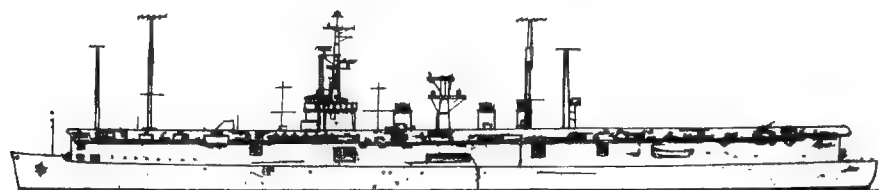
GEARING Class with tripod mast



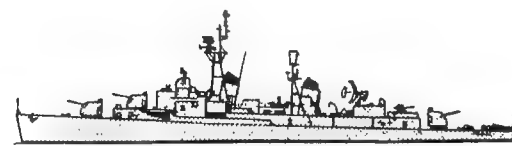
OREGON CITY, ROCHESTER



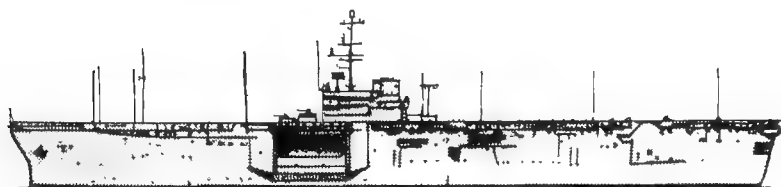
GEARING Class Radar Pickets



WRIGHT. Command Ship. Converted Aircraft Carrier



GEARING Class Radar Pickets with mainmast



IWO JIMA Class. Amphibious Assault Ship, (Helicopter Commando Carrier)



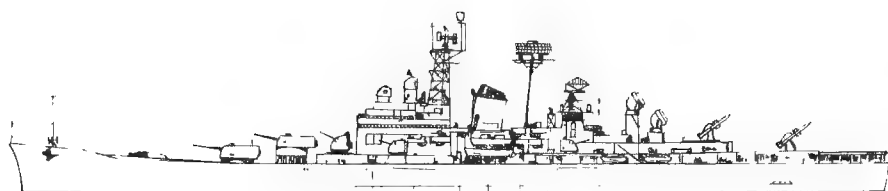
ALLEN M. SUMNER Class with tripod

Silhouettes—continued

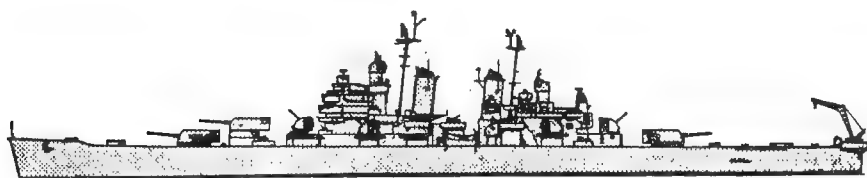
Scale : 150 ft. = 1 Inch

Cruisers

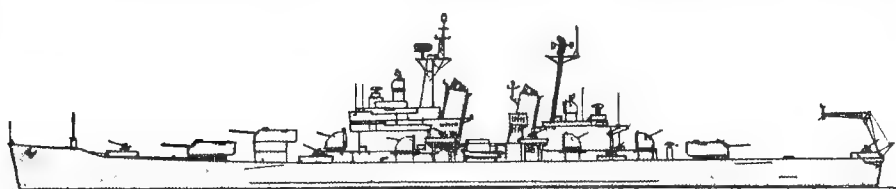
Destroyers



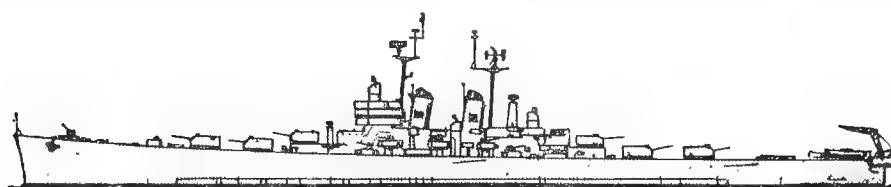
BOSTON (no helo deck), CANBERRA. Guided Missile Heavy Cruisers. Converted



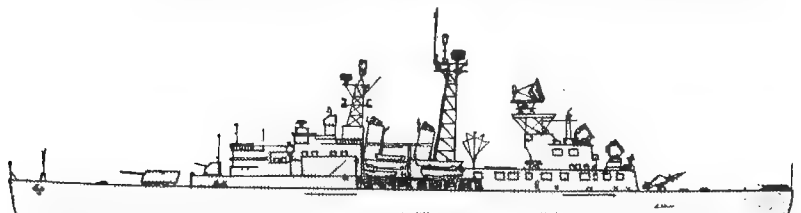
BALTIMORE Class, Heavy Cruisers



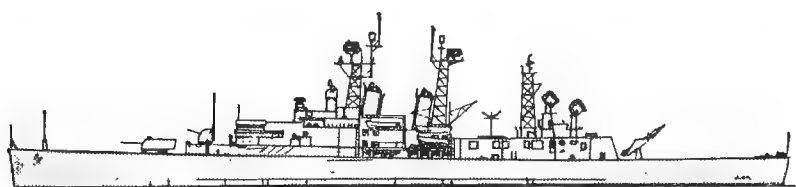
HELENA, ST. PAUL, Heavy Cruisers



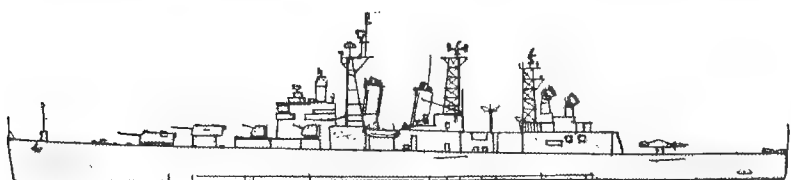
ROANOKE, WORCESTER, Large Light Cruisers



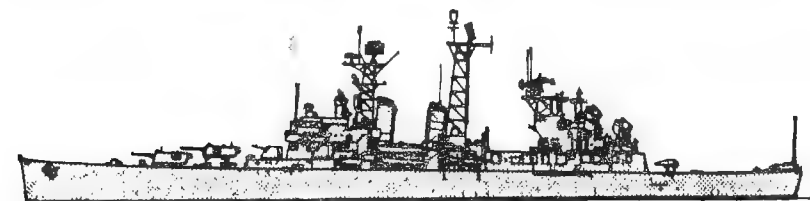
LITTLE ROCK, OKLAHOMA CITY, Guided Missile Light Cruisers. Converted.



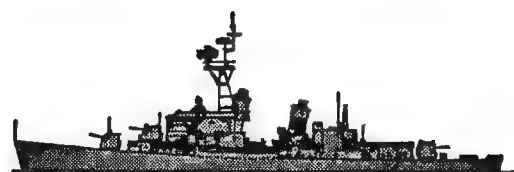
PROVIDENCE, SPRINGFIELD, Guided Missile Light Cruisers. Converted



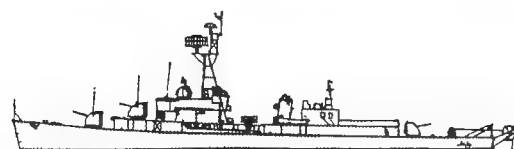
TOPEKA, Guided Missile Light Cruiser. Converted



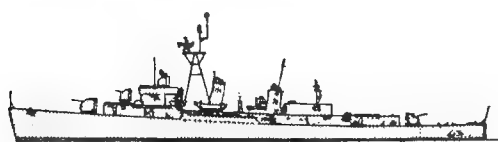
GALVESTON, Guided Missile Light Cruiser. Converted



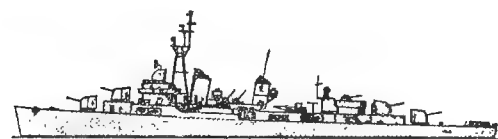
ALLEN M. SUMNER Class FRAM Conversions



JOHN W. THOMASON (prototype FRAM)



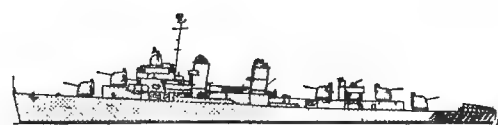
FLETCHER Class FRAM Conversions



FLETCHER Class with 4—5" guns



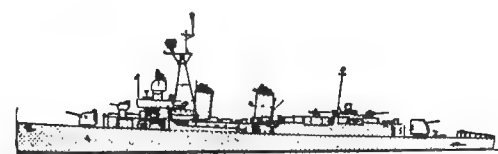
FLETCHER Class with 5—5" guns



FLETCHER Class (Later, Earlier vessels higher fire control)



Converted FLETCHER Class with polemast

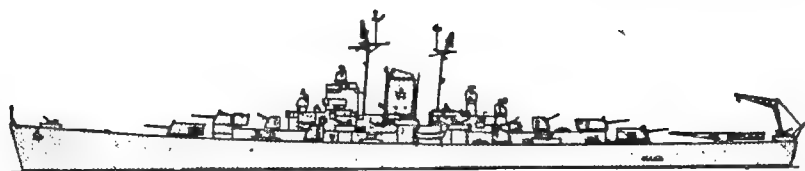


Converted FLETCHER Class with tripod mast

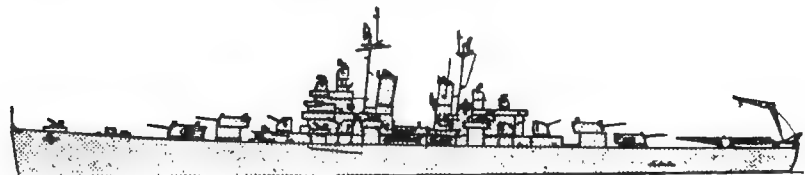
Cruisers, Destroyers

Silhouettes—continued
Scale: 150 ft. = 1 inch.

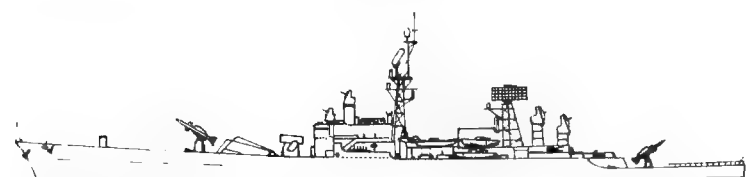
Destroyer Escorts



FARGO. Light Cruiser



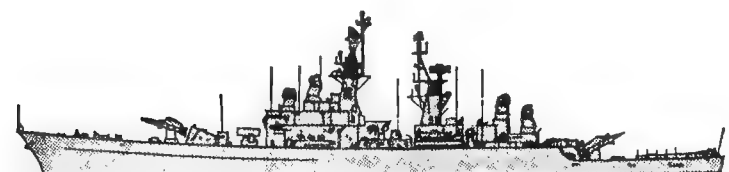
CLEVELAND Class. Light Cruisers



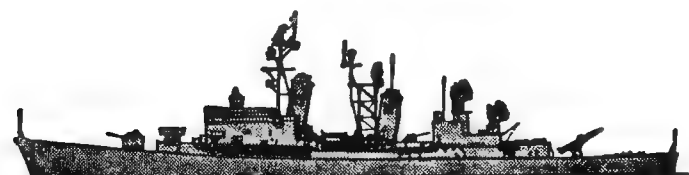
BAINBRIDGE. Nuclear Powered Guided Missile Frigate (Destroyer Leader)



NORFOLK. Frigate. ex-Anti-Submarine Light Cruiser



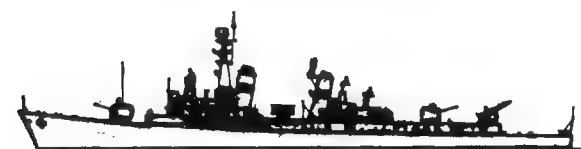
LEAHY Class. Guided Missile Frigates (Destroyer Leaders)



COONTZ Class. Guided Missile Frigates (Destroyer Leaders)



MITSCHER Class. Frigates. ex-Destroyer Leaders



CHARLES F. ADAMS Class. Guided Missile Armed Destroyers



FORREST SHERMAN Class. Large Destroyers



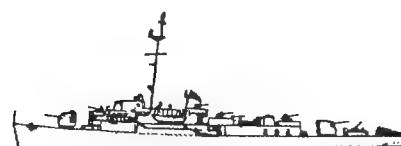
BRONSTEIN Class



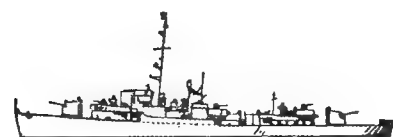
CLAUD JONES Class



DEALEY Class



RUDDEROW Class



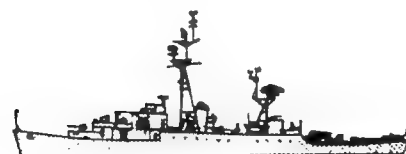
JOHN C. BUTLER Class



BUCKLEY Class with 5" guns



BUCKLEY Class as Radar Picket



EDSALL Type as Radar Picket



Fast Transports. Ex-Destroyer Escorts

NUCLEAR POWERED ATTACK AIRCRAFT CARRIER (CVAN)



1962, courtesy Newport News Shipbuilding and Dry Dock Company

ENTERPRISE

ENTERPRISE

No.:	CVAN 65
Builders:	Newport News Shipbuilding and Dry Dock Company, Newport News, Virginia
Engineers:	Westinghouse Electric Corporation, Pittsburgh, Pennsylvania
Ordered:	16 Aug. 1957
Laid down:	4 Feb. 1958
Launched:	24 Sep. 1960
Completed:	20 Dec. 1961
Displacement:	75,700 tons standard (85,350 tons full load)
Dimensions:	Length 1,040 (pp.), 1,102 (o.a.) feet. Beam: 133 feet (hull). Width: 252 feet (flight deck). Draught: 37 feet. Hangar height: 25 feet. Area of flight deck: 4½ acres
Aircraft:	100 to 70 (more or fewer, according to size and type)
Guided missiles:	2 twin "Terrier" ship-to-air launchers to be added
Catapults:	4 of C-13 steam type
Machinery:	8 pressurised water cooled A 2 W nuclear reactors. Geared steam turbines. 4 shafts. S.H.P.: 300,000=33 kts. (35 kts. max). 400,000 miles at 20 kts.; 140,000 miles at full speed
Radius:	
Complement:	Allowance: 120 officers, 2,750 men (4,300 including air wing). Accommodation for 414 officers, 4,260 men.

General

The world's largest aircraft carrier ever built. In Fiscal Year 1958 new construction programme. Advance design and procurement of this first nuclear powered attack aircraft carrier was provided in Fiscal Year 1957 Appropriations. Block island superstructure, no funnels, four deck-edge lifts, three on the starboard side, one on the port. Almost unlimited steaming endurance at high speed without regard to conserving fuel. Capable of steaming for five years without refuelling. Cruising range is equivalent to twenty times around the world. Able to carry twice as much aviation fuel as the "Forrestal" class. An additional 4,000 sq. ft. of flight deck permits operation of more and larger aircraft. With nuclear propulsion ship required no funnels or uptakes, and this reduced the superstructure to improve radar capabilities and simplify damage control. Absence of smoke stacks and boiler air intakes reduces the vulnerability of the power plant to battle damage and eliminates the possibility of radioactive or biological agents entering the ship. A "stackless" ship also allows an island configuration facilitating the installation of new high performance radar. Four fixed antennae built into the sides of the island superstructure double former radar ranges. Cost \$444,000,000 (about £158,570,000).

Engineering

The nuclear plant was designed and developed by the Atomic Energy Commission at Bettis, in co-operation with the Navy. Westinghouse obtained the contract to design and furnish the reactor compartment components and built the steam propulsion machinery on 17 Dec. 1957. There are two reactors for each of the four shafts. The eight reactors feed 32 heat exchangers (8×37,500=300,000). The first reactor became critical on 2 Dec. 1960. The ship refueled for the first time in 1964 during a seven-month overhaul.

Deployment

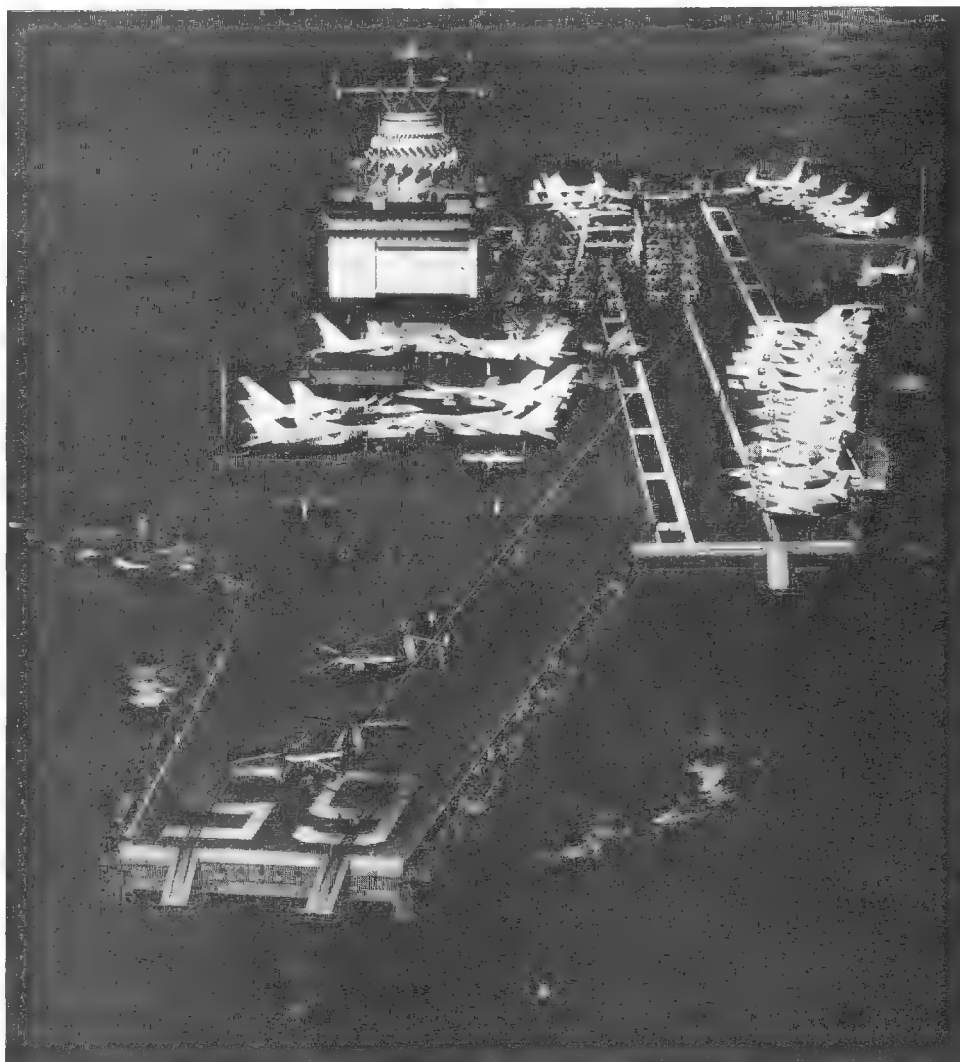
Enterprise is scheduled for the Pacific Fleet in 1966.

Photographs

Starboard quarter oblique aerial views and a port bow oblique aerial appear in the 1962-63 to 1964-65 editions.

Second Nuclear Powered Aircraft Carrier

In July 1965 a design contract for \$1,920,000 was awarded to Newport News Shipbuilding & Dry Dock Co. for a nuclear powered attack aircraft carrier, CVAN. Construction not yet authorised, but may be in Fiscal Year 1967.



ENTERPRISE

1965, United States Navy, Official

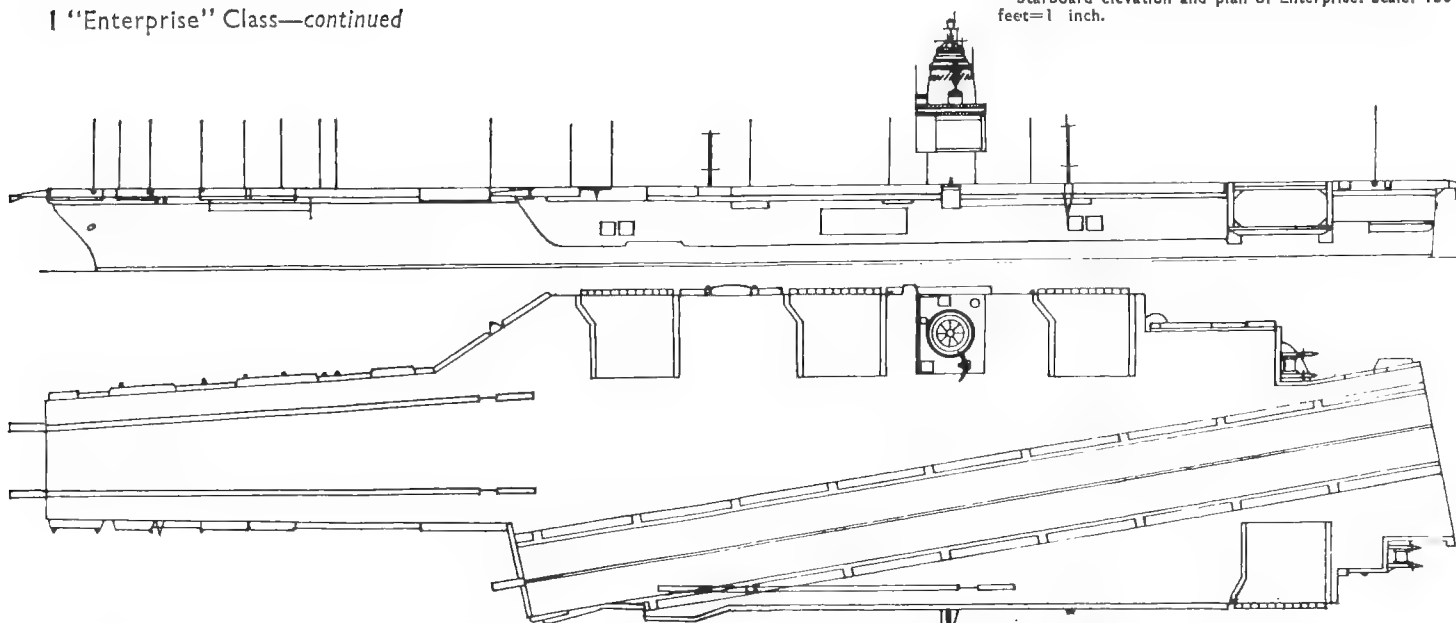


ENTERPRISE

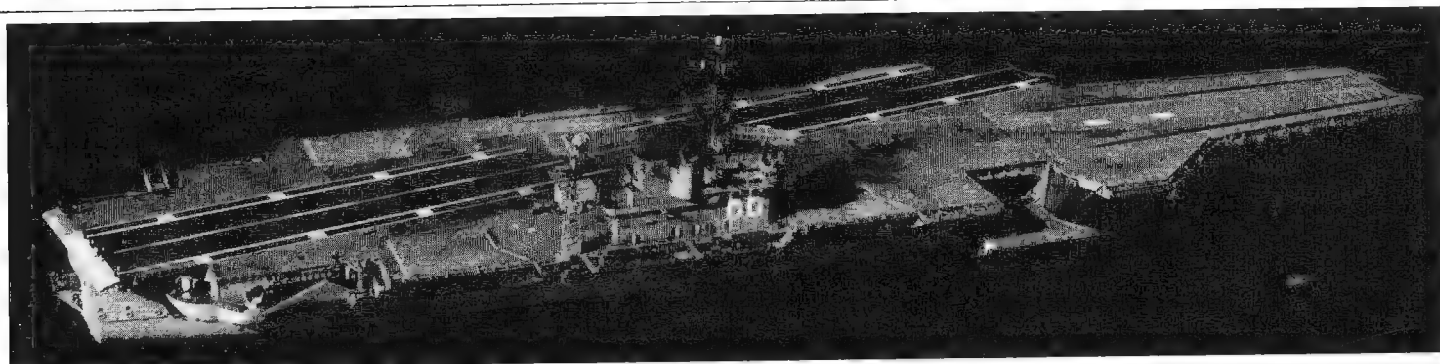
1965, United States Navy, Official

Nuclear Powered Attack Aircraft Carrier—*continued*

Drawing
Starboard elevation and plan of *Enterprise*. Scale: 150
feet=1 inch.

1 "Enterprise" Class—*continued*

ATTACK AIRCRAFT CARRIERS (CVA)



AMERICA

1965, United States Navy, Official

2 "America" Class

Name: AMERICA JOHN F. KENNEDY

No.: CVA 66 CVA 67

Builders: Newport News Shipbuilding and Dry Dock Company, Newport News, Virginia

Laid down: 9 Jan. 1961 22 Oct. 1964

Launched: 1 Feb. 1964

Completed: 13 Jan. 1965

Displacement: 64,000 tons standard (77,600 tons full load) John F. Kennedy 80,700 tons full load

Dimensions: Length: 990 (pp.), 1,047½ feet (o.a.). Beam: 252 feet. Draught: 37 feet. Area of flight deck: 4½ acres

Aircraft: 90 including 3 Attack (VA) and 2 Fighter (VF) squadrons

Guided missiles: America: 2 twin "Terrier" launchers; John F. Kennedy: 2 twin "Tartar" launchers

Catapults: 4 of C-13 steam type

Machinery: 4 geared steam turbines. 4 shafts. S.H.P.: 280,000=35 kts.

Boilers: 8 Foster Wheeler 1,200 lb.sq.in.

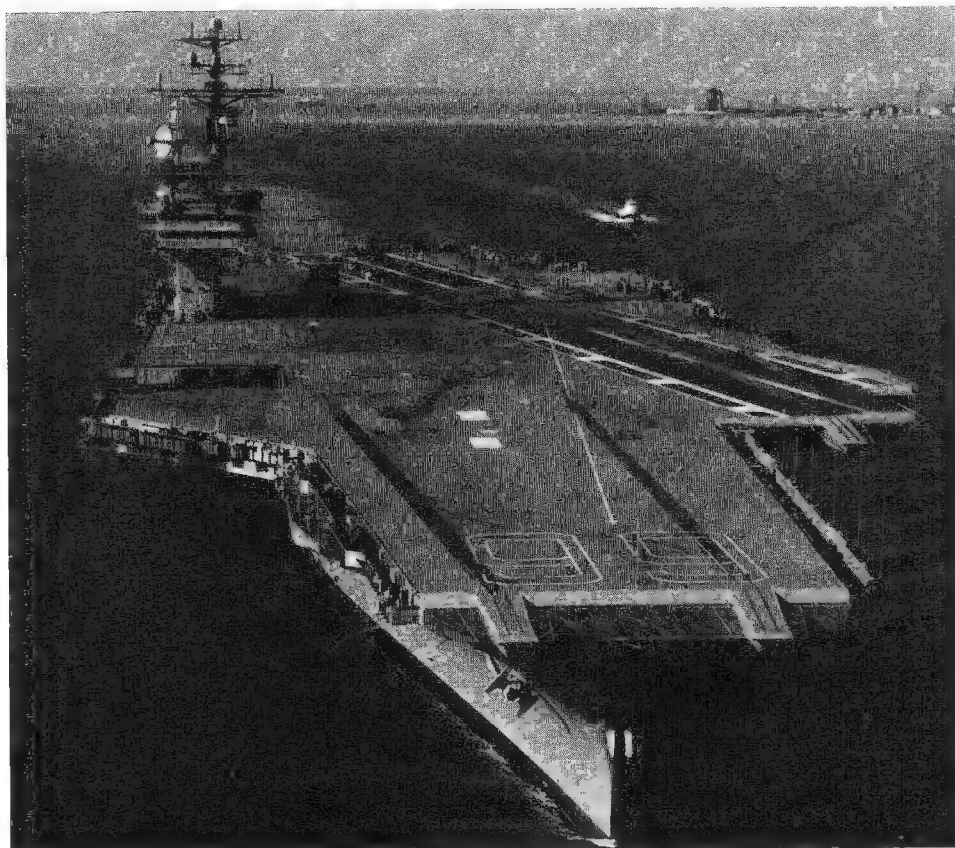
Complement: 120 officers, 2,550 men (4,965 including air wing). Accommodation for 420 officers 4,200 men

General

Conventionally powered, *America* was authorised under the 1961 new construction programme. Cost \$293,000,000 (\$156,500,000 for hull and machinery). Main differences between *America* (also CVA 63, 64) and the "Forrestal" class are the different elevator arrangements with two lifts before the bridge on the starboard side and one on the after quarter on the port side; and a more streamlined island. Commissioned on 23 Jan. 1965. Atlantic Fleet. The construction of *John F. Kennedy*, authorised two years before, was awarded to Newport News in Apr. 1964. To be launched on 1 Apr. 1967 and completed by 29 Apr. 1968. Cost \$227,198,000.

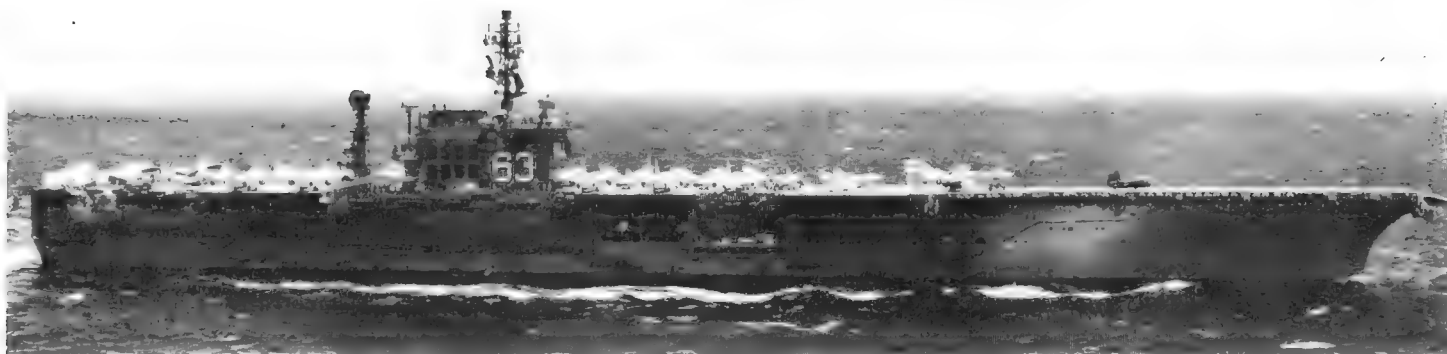
Electronics

The design embodies many of the electronic systems of the nuclear powered aircraft carrier *Enterprise*. These include an improved long-range search radar system, the automatic aircraft landing system, bow mounted SQS-23 sonar and the Naval Tactical Data System.



AMERICA

1965, United States Navy, Official



KITTY HAWK 1965, United States Navy, Official (direct from U.S.S. Kitty Hawk, courtesy of Commanding Officer

2 "Kitty Hawk" Class
CONSTELLATION KITTY HAWK
4 "Forrestal" Class

FORRESTAL RANGER
INDEPENDENCE SARATOGA

Displacement: 60,000 tons standard (76,000 tons full load) except Forrestal, 59,650 tons standard (75,900 tons full load), Constellation and Kitty Hawk 76,700 tons full load

Dimensions: Length: 990 (pp.), 1,039 (o.a.) Forrestal, 1,045½ (o.a.) Saratoga, 1,046 (o.a.) Ranger, Independence, 1,047 (o.a.), Kitty Hawk, 1,047½ (o.a.) Constellation feet. Beam: 129½ (hull). Width: 252 feet (flight deck) Draught: 37 feet

Guns: Area of flight deck: 4.1 acres 4—5 inch. 54 cal. dual purpose (no guns in Constellation and Kitty Hawk) see Gunnery

Guided missiles: 2 twin "Terrier" launchers in Kitty Hawk and Constellation

Aircraft: 90 to 60 (more or fewer according to size and type)

Catapults: 4 steam

Machinery: 4 geared turbines, 4 shafts. S.H.P.: 260,000 (in Forrestal)=33 kts. All others 280,000=35 kts. (Independence 36 kts.)

Boilers: 8 Babcock & Wilcox (Foster Wheeler in Constellation and Kitty Hawk) 1,200 lb. sq. in.

Old fuel: 7,828 tons

Aviation fuel: 5,882 tons

Complement: Allowance: 119 officers, 2,540 men excluding air group personnel. Accommodation for 428 officers, 4,155 men (Kitty Hawk class); 442 officers, 3,360 men (Forrestal class) See Complement notes

General
Forrestal (contract awarded on 12 July 1951) was named after the Secretary of Defence who was in office when the subsequently cancelled Heavy Carrier United States (CVA 58) was named in 1949. Ranger authorised in 1954 Fiscal year; contract awarded 2 Feb. 1954. Independence authorised in 1955 Fiscal year. Kitty Hawk, named for the site where the Wright brothers made their historic flights, was first tentatively to have been named Congress. Cost \$218,000,000 (Forrestal), \$209,700,000 (Saratoga), \$182,000,000 (Ranger), \$189,311,000 (Independence) and \$200,000,000 (Constellation), Independence commissioned on 10 Jan. 1959, Kitty Hawk on 2 Apr. 1961 and Constellation on 27 Oct. 1961. During a 6-months overhaul of Ranger in 1963-64 eight feet was added to angled deck width to accommodate newer aircraft.

Construction
Four deck edge elevators. Flight deck about 80 feet longer than that in the "Midway" class to operate larger, heavier carrier-based naval aircraft of the newest designs. Increased catapult and arresting capacity, larger elevators, higher hangar decks, mirror sight to aid in landing on aircraft, added armour and improved underwater protection. The flight deck is a strength deck by reduction of the opening in the hangar sides, bow enclosed up to the flight deck for seaworthiness in all types of weather, island acoustically constructed to block out external noise, air-conditioned berthing quarters, three rudders.

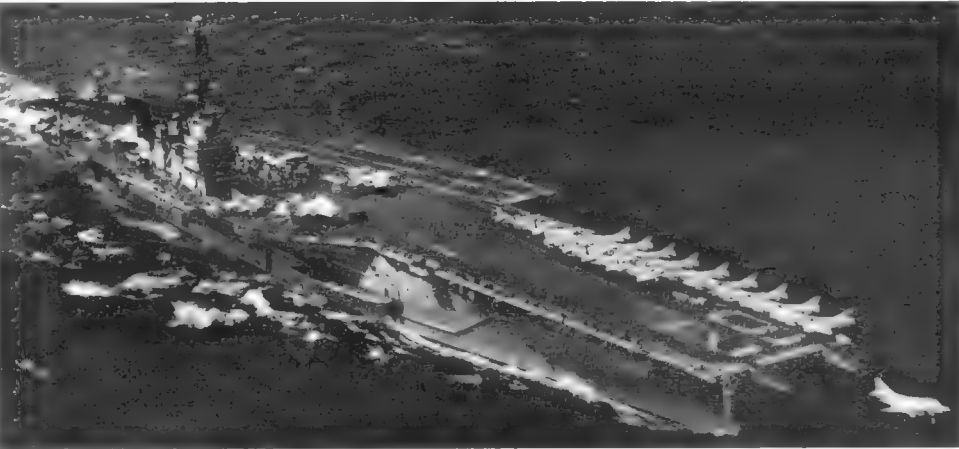
Engineering
Two propellers are 4-bladed and two 5-bladed, Kitty Hawk has four 5-bladed propellers.

Complement
The complement is being increased by 400 to 800 men per ship for support of new aircraft maintenance.

Gunnery
The forward gun sponsons were removed from Forrestal, Independence, Ranger and Saratoga. The sponsons interfered with operations during heavy weather, tending to slow the ship down. The sponsons contained 2—5 inch guns each, thus the armament has been halved, only 4—5 inch mounts remaining in the two after sponsons. Sponsons were not built on Constellation and Kitty Hawk.



RANGER 1965, United States Navy, Official



INDEPENDENCE 1965, United States Navy, Official

Appearance
Mast configurations differ. Two masts in Forrestal, one in others. In the last two ships, Kitty Hawk and Constellation, the island is smaller and further aft than the superstructure in the first four, and the lifts are disposed two before the island and one abaft the island on the starboard side, and one on the after quarter. On the port side, compared with two abaft the island and one before the island on the starboard side, and one on the forward quarter on the port side in the first four ships.

Photographs
Port bow aerial view of Ranger in 1957-58 to 1961-62 editions. Port bow oblique aerial view of Independence in 1959-60 to 1962-63 editions. Port bow oblique aerial view of Kitty Hawk in 1961-62 and 1962-63 editions. Starboard bow aerial view of Forrestal in 1958-59 to 1963-64 editions. Counter aerial view of Kitty Hawk showing mast hinged down in 1961-62 to 1963-64 editions. Port quarter surface view of Saratoga in the 1958-59 to 1964-65 editions. Starboard broadside aerial view of Independence in the 1959-60 to 1964-65 editions. Starboard bow oblique aerial view of Kitty Hawk in the 1963-64 and 1964-65 editions. Starboard bow oblique aerial view of Ranger in the 1964-65 edition.

No.	Name	Builders	Laid down	Launched	Completed
CVA 59	Forrestal	Newport News S.B. Co	14 J. y 1952	11 Dec. 1954	1 Oct. 1955
CVA 60	Saratoga	New York Naval Shipyard	16 Dec 1952	8 Oct. 1955	14 Apr. 1956
CVA 61	Ranger	Newport News S.B. Co	2 Aug 1954	29 Sep. 1956	10 Aug. 1957
CVA 62	Independence	New York Naval Shipyard	1 July 1955	6 June 1958	3 Apr. 1959
CVA 63	Kitty Hawk	New York S.B. Corp., N.J.	27 Dec. 1956	21 May 1960	9 June 1961
CVA 64	Constellation	New York Naval Shipyard	14 Sep. 1957	8 Oct. 1960	19 Jan. 1962

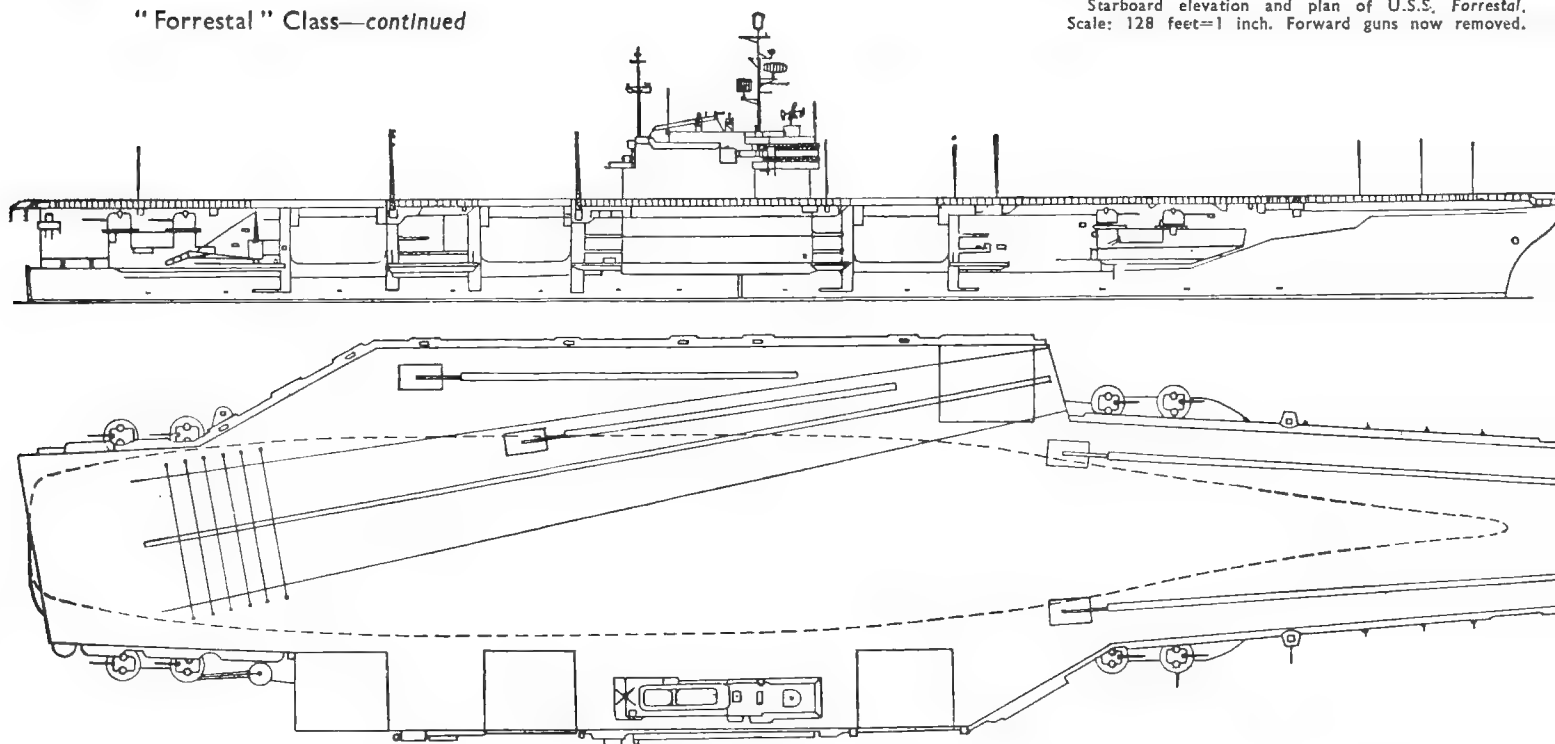


CONSTELLATION

1965, United States Navy Official

"Forrestal" Class—continued

Drawing
Starboard elevation and plan of U.S.S. Forrestal.
Scale: 128 feet=1 inch. Forward guns now removed.



3 "Midway" Class

CORAL SEA
FRANKLIN D. ROOSEVELT (ex-Coral Sea)
MIDWAY

Displacement: Franklin D. Roosevelt and Midway 51,000 tons standard, Coral Sea 52,500 tons standard (Midway 62,000 tons full load, Franklin D. Roosevelt 62,674 tons full load, Coral Sea 63,400 tons full load)

Dimensions: Length: 900 (w.l.), 968 (o.a.) feet. Beam: 121 (hull). Width: 174 feet (flight deck). Draught: 36 feet

Guns: 4—5 inch, 54 cal. (3—5 inch in Coral Sea); the 22—3 inch, 50 cal. were removed. See Gunnery notes on next page

Aircraft: 80 to 50 (more or fewer according to size and type)

Catapults: 3 steam (2 forward only in Franklin D. Roosevelt)

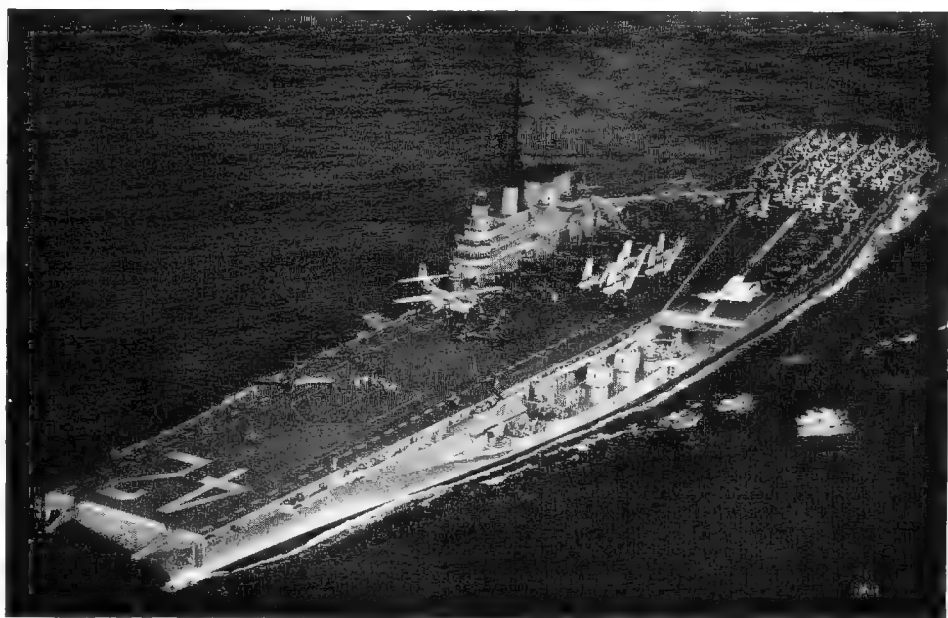
Machinery: Geared turbines, 4 shafts. S.H.P.: 212,000=33 kts.

Boilers: 12 Babcock & Wilcox

Complement: Allowance: 112 officers, 2,475 men (not including air group personnel). Accommodation for 412 officers, 3,550 men

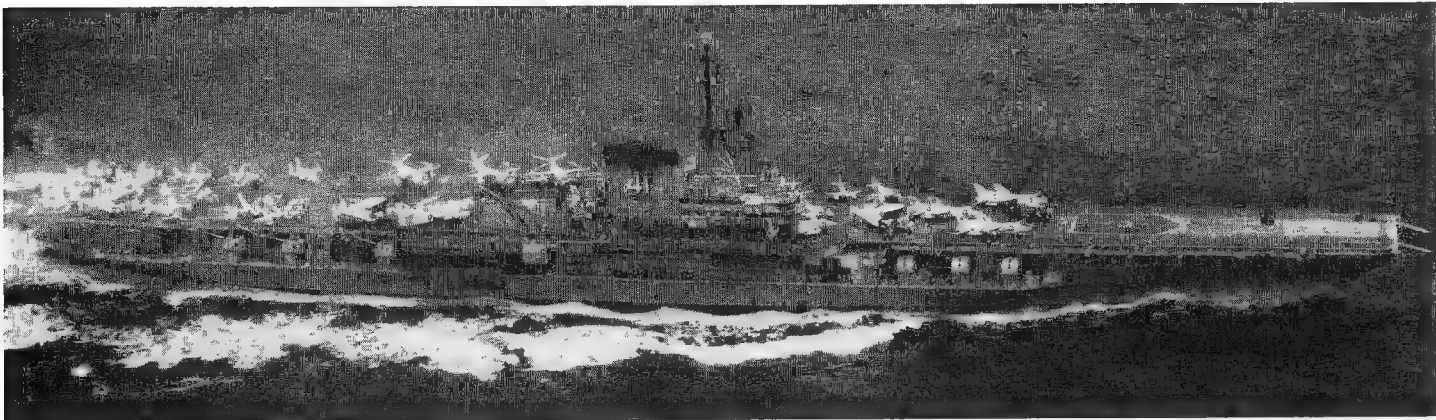
General

The originally designed standard displacement was 45,000 tons, subsequently increased considerably as a result of conversion and re-construction with angled deck, enclosed bow and other modifications (see, Modernisation notes on following page). They were the most extensively welded ships in the United States Navy. Cost \$90,000,000 each to build initially.



FRANKLIN D. ROOSEVELT

1958, U.S. Navy, Official



MIDWAY

1965, United States Navy, Official

3 "Midway" Class—continued

Gunnery
Midway and Franklin D. Roosevelt originally mounted eighteen 5 inch guns, subsequently fourteen and later only ten, four on the port side and six on the starboard side. They also had 3-inch twin gun mountings (now removed) in place of the former 40 mm. quadruple gun mountings. Six 5 inch were removed from Franklin D. Roosevelt during her 1936 overhaul.

Aircraft Complement
These three ships could originally carry 137 aircraft, but aircraft were then smaller.

Armour
Protected by heavy armour, intricate water-tight compartments and an improved system of damage control. The armoured flight deck is 932×113 feet in extent and is covered with non-skid surface material; it was strengthened in all three ships during 1947-48, to enable heavier aircraft to be handled.

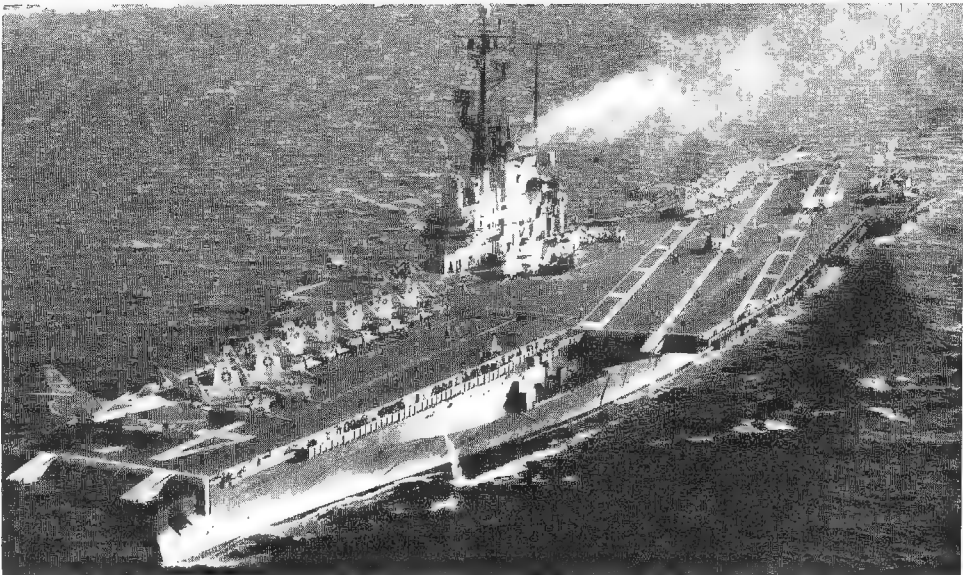
Flight Deck
The flight deck is officially estimated to cover an area of 3 acres.

Elevators
The triangular section on the forward end of the forward elevators in these ships (and in some modernised "Essex" class aircraft carriers) increases the length of the elevators 12 feet along the centreline. The additional length permits easier handling of larger aircraft.

Following modernisation Midway and Roosevelt each have two deck-edge elevators and one centreline elevator. Coral Sea has three aluminium deck-edge elevators.

Disposition
Coral Sea and Midway are in the Pacific Fleet; Franklin D. Roosevelt is in the Atlantic Fleet.

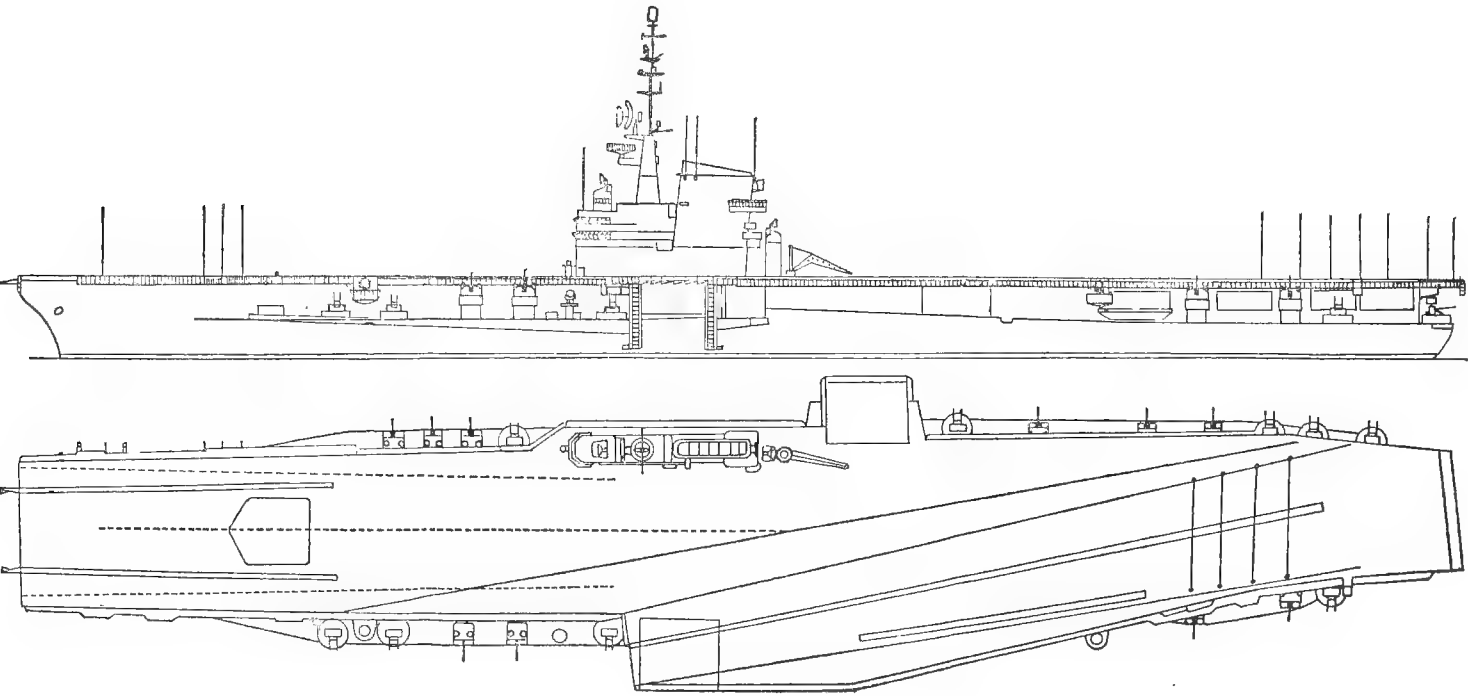
Drawing
Port elevation and plan. Scale: 128 feet=1 inch. This represents Franklin D. Roosevelt. See Gunnery above, and Modernisation and Appearance on next page.



CORAL SEA

1964, United States Navy, Official

No.	Name	Builders	Machinery	Laid down	Launched	Completed
CVA 43	Coral Sea	Newport News Co.	Westinghouse	10 July 1944	2 Apr. 1946	1 Oct. 1947
CVA 42	Franklin D. Roosevelt	New York Navy Yard	General Electric	1 Dec. 1943	29 Apr. 1945	27 Oct. 1945
CVA 41	Midway	Newport News Co.	Westinghouse	27 Oct. 1943	20 Mar. 1945	11 Sep. 1945



3 "Midway" Class—continued

Appearance
Coral Sea and *Franklin D. Roosevelt* have truncated conical stanchion and pole mast. *Midway* has lattice mast. *Coral Sea* differed in her gun layout from the other two. See *Gunnery* notes on previous page.

Photographs
Starboard bow aerial view and port quarter aerial view of *Franklin D. Roosevelt* after conversion with angled deck and enclosed bow, port bow view of *Midway* before conversion, and port near broadside view of *Coral Sea* before conversion, in the 1957-58 edition. Starboard quarter aerial view of *Midway* in the 1958-59 and 1959-60 editions, starboard quarter surface view of *Franklin D. Roosevelt* in the 1959-60 edition and counter view of *Franklin D. Roosevelt*, showing flight deck transom and sponsons, on page 476 (Addenda) of the 1959-60 edition. Bow aerial view of *Coral Sea* in the 1960-61 to 1963-64 editions, and port quarter oblique aerial view in the 1961-62 to 1963-64 editions. Port bow oblique aerial view of *Midway* in the 1959-60 to 1964-65 editions.

Modernisation
Franklin D. Roosevelt was modernised at Puget Sound Naval Shipyard under the 1954 conversion programme, with angled deck, enclosed bow, three higher capacity catapults (steam), increased aviation fuel capacity, and broader hull, enabling her to handle faster and heavier jet aircraft. Conversion was completed on 6 Apr. 1956 and cost \$48,000,000. 53 per cent of ship's original cost. During the 1963 overhaul of *Franklin D. Roosevelt* the angled deck catapult was removed and two forward catapults rebuilt.

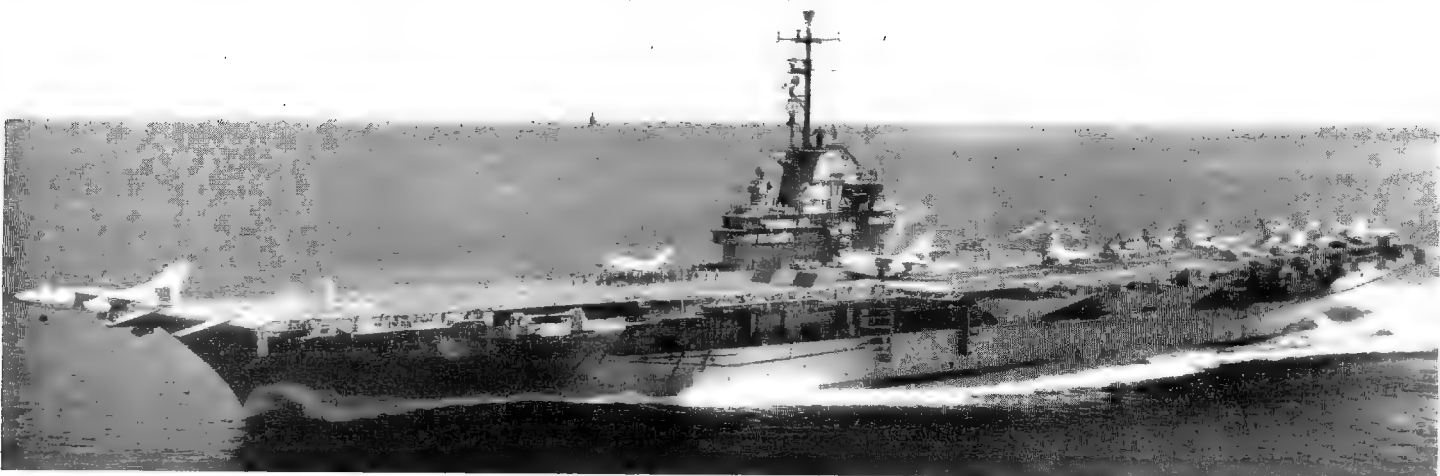
Modernisation and conversion of *Midway*, including installation of the angled deck, as authorised in the 1954 Fiscal year commenced in Autumn 1955 at Puget Sound Naval Shipyard and was completed on 30 Sep. 1957 when she was recommissioned for duty with the Pacific Fleet. At the end of 1965 *Midway* is to be taken in hand for further modernisation.

Modernisation and conversion of *Coral Sea* was authorised in the Fiscal year 1957. Conversion at Puget

Sound Naval Shipyard commenced in Apr. 1957. The forward centreline elevator was replaced by a deck edge elevator on the starboard side forward, while the port side elevator originally installed was moved aft. Arresting gear and barricades were relocated, and extensive changes made in the hangar bay area. The beam at the waterline was increased by approximately 8 feet. This ship was designed during the Second World War on the basis of experience with the "Essex" class, but was completed too late to see service. This was the first major conversion she underwent, and comprised complete modernisation, including angled deck, hurricane bow and replacement of two hydraulic catapults by three steam catapults. She was recommissioned on 25 Jan. 1960.

Classification
All originally designed as CVB's but were reclassified as Attack Aircraft Carriers, CVA in Oct. 1952.

Class
Three more ships of this-class projected were cancelled, CVB 44 in 1943 and CVB 56 and CVB 57 in 1945.



ORISKANY

1962, courtesy Mr. Thomas Moran

5 "Oriskany" Type
(Improved "Essex" Class)

BON HOMME RICHARD HANCOCK (ex- Ticonderoga) ORISKANY	SHANGRI-LA TICONDEROGA (ex-Hancock)
Displacement:	33,100 tons standard (40,800 to 42,600 tons full load), (Displacement of 27c conversions: 41,434 tons full load).
Dimensions:	Length: 786 (pp.), 840 (w.l.), 898½ (o.a.) feet. Oriskany 904 feet (o.a.) Bon Homme Richard, Shangri-La 889 (o.a.) feet. Flight deck: 876 feet. Hangar: 720 feet. Beam: 101 to 103 feet (hull), 129 feet (over sponsons). Width: Hangar 93 feet (max.); Ship 192 feet (extreme). Draught: 31 (max.) feet. Dimensions of 27c conversions: Length: 880 feet. Width: 192 feet (extreme)
Guns:	4 to 8—5 inch, 38 cal. (7—5 inch in Ticonderoga, see <i>Gunnery</i>); The 28—3 inch, 50 cal. in twin mounts were removed 70 to 60 (more or fewer according to size and type).
Aircraft:	2 steam (see <i>Conversion</i> notes)
Catapults	3 inch sides 3 inch decks
Armour:	Geared turbines. 4 shafts, S.H.P.: 150,000=33 kts.
Machinery:	8 Babcock & Wilcox
Boilers:	Allowance: 100 officers, 1,890 men (not including air group personnel). Accommodation for 340 officers, 2,950 men.
Complement:	

General
Oriskany was the first of a new type to which modified "Essex" class carriers subsequently conformed; her construction was delayed and she was completed to a modified design with an improved island, heavier decks and handling gear to operate bigger aircraft, larger lifts, more powerful catapults, a stronger runway and increased stowage for petrol as compared with the "Essex" class. Bulges offset the extra weight thus added.
Hancock completed catapult conversion Jan. 1954; first to have new steam catapults and starboard deck-edge elevator; first of 27c conversions, has one-foot wider blister than 27a conversions. Catapult conversions completed as follows:—*Intrepid* Apr. 1954, *Ticonderoga* Apr. 1954. Angled deck and enclosed bow conversion completed in *Bennington* 1 Apr. 1955, *Essex* 9 Mar. 1956, *Hornet* 15 Aug. 1956, *Kearsarge* 31 Jan.



HANCOCK

Added 1965, United States Navy, Official

1957, *Oriskany* 31 Mar. 1959, *Randolph* 12 Feb. 1956, *Wasp* 1 Dec. 1955, and *Yorktown* 14 Oct. 1955. Angled deck, steam catapult and enclosed bow conversion completed in *Shangri-La* 1 Feb. 1955, *Lexington* 1 Sep. 1955, *Bon Homme Richard* 1 Nov. 1955, *Hancock* 15 Nov. 1956. *Ticonderoga* 1 Apr. 1957, *Intrepid* 2 May 1957. *Shangri-La* has mirror sight landing aid system. *Kearsarge* is equipped with all aluminium surface to flight deck and aluminium elevators; she is the first aircraft carrier so fitted.
Gunnery
One 5-inch mount was removed from *Ticonderoga* during her 1962 overhaul.
Photographs
A port bow view of *Bon Homme Richard* appears in the 1958-59 to 1961-62 editions, and a starboard bow oblique aerial view of *Bon Homme Richard* in the 1963-64 and 1964-65 editions.

Conversion
Oriskany underwent extensive conversion and modernisation amounting to reconstruction at San Francisco including the following improvements: Angled deck; Enclosed bow; Arresting gear able to handle larger and heavier aircraft; Two high capacity steam catapults; Increased aircraft elevator capacity and size; Modern special weapon spaces; Air-to-air missile stowage and facilities; Increased aviation fuel stowage for jet fuel. Flight deck of increased strength to permit landing A3D type aircraft. One third of the deck is of aluminium planking. She was the last of the Second World War built aircraft carriers to receive the angled deck, enclosed bow, and steam catapults. She recommissioned on 7 Mar. 1959.
Building
For builders and construction dates of the above modernised ships of the "Essex" class see next page.



YORKTOWN

1965, United States Navy, Official

Support Aircraft Carriers (CVS)
Amphibious Assault Ships (LPH)
Auxiliary Aircraft Transports (AVT)
18 "Essex" Class

ANTIETAM	LEXINGTON (ex-Cabot)
BENNINGTON	LEYTE (ex-Crown Point)
BOXER	PHILIPPINE SEA (ex-Wright)
BUNKER HILL	PRINCETON
ESSEX	RANDOLPH
HORNET (ex-Kearsarge)	TARAWA
INTREPID	VALLEY FORGE
KEARSARGE	WASP (ex-Oriskany)
LAKE CHAMPLAIN	YORKTOWN (ex-Bon Homme Richard)
Displacement:	30,800 tons standard (38,500 tons full load)
Dimensions:	Length: 786 (pp.), 840 (w.l.), 888 (o.a.), Bunker Hill, 879 (o.a.), Bennington, Lexington, Tarawa, Valley Forge, 889 (o.a.) Essex 898 (o.a.) Hornet, Lake Champlain, Wasp 899 (o.a.) feet Flight deck: 876 feet. Hangar: 720 feet
Guns:	Beam: 93 Hornet, Lake Champlain, Wasp 101 (hull), 113 feet (over sponsons). Width: Hangar 93 (max.), Ship 136 feet (extreme). Wasp, Antietam 154 feet (including angled deck). Draught: 30½ (max.) feet
Aircraft:	4 to 8—5 inch, 38 cal. in CVS; 8—5 inch, 38 cal. in LPH 4; 6—5 inch, 38 cal. in LPH 5, 8; 12—5 inch, 38 cal. in AVT. (see Gunnery notes on next page)
Armour:	CVS carry 20 fixed wing aircraft, 16 ASW helicopters, 4 light attack, 4 early warning, 1 or more rescue helicopters and 1 utility. LPH carry about 30 helicopters.
Machinery:	3"—2" side amidships, 3" hangar deck, 1½" flight deck, 1½" upper deck
Boilers:	Geared turbines. 4 shafts, S.H.P.: 150,000=33 kts.
Complement:	8 Babcock & Wilcox
General	CVS Allowance: 87 officers, 1,430 men (excluding air group personnel). Accommodation for 340 officers, 2,890 men

The first ship of this class was ordered in 1940. The designed displacement was 27,100 tons. The original capacity, with smaller aircraft, was 85 to 100, and 107 were carried by close stowage. Essex was built in 20 months, Yorktown in 17½ months. Later ships of this class were of improved design, with stronger flight decks, and more thoroughly sub-divided. CVSs underwent conversion for anti-submarine warfare. LPHs were adapted to carry 30 helicopters and a Marine detachment of 10 officers and 323 men, with accommodation for 1,650 troops, but no structural alterations were made. They could still handle fixed wing aircraft if necessary. Lexington is the permanent training carrier as Pensacola.

Disposals
Franklin, AVT 8 (ex-CVS 13) was stricken from the list of U.S. Naval Vessels on 1 Oct. 1964. Bunker Hill, Leyte, Philippine Sea and Tarawa (all declassified to AVT) may be stricken in the near future.



WASP

1964, United States Navy, Official

Engineering

In Nov. 1945, Lake Champlain made Atlantic crossing from Gibraltar to Newport News in 4 days, 8 hours, 51 minutes, an average speed of 32.048 kts. Philippine Sea made Pacific crossing from Yokohama to San Francisco in 7 days, 13 hours, an average speed of 25.2 kts.

Sonar
Randolph was fitted with sonar, the first of its type in any aircraft carrier. Other CVSs are also now fitted with sonar, or will be fitted, as will most other aircraft carriers.

Marine Complements

In addition to their ship's companies of 1,000 officers and men Boxer, Princeton and Valley Forge are capable of carrying a Marine Battalion Landing Team of 1,200 to 1,500 officers and men, plus the crews for 30 to 40 helicopters.

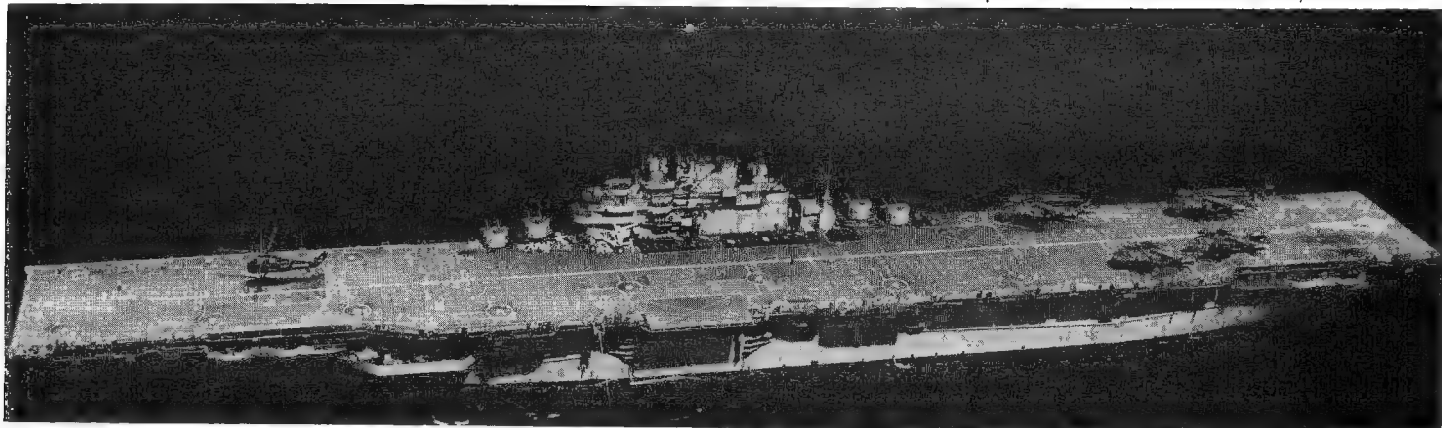
Drawing

A starboard elevator and plan drawing of the improved "Essex" class before conversion to angled deck and enclosed bow, scale 128 feet=1 inch, appears in the 1964-65 and earlier editions.

No.	Name	Builders	Laid down	Launched	Completed
CVS 9	Essex	Newport News S.B. & D.D. Co.	28 Apr. 1941	31 July 1942	31 Dec. 1942
CVS 10	Yorktown		1 Dec. 1941	21 Jan. 1943	15 May 1943
CVS 11	Intrepid		1 Dec. 1941	26 Apr. 1943	16 Aug. 1943
CVS 12	Hornet		3 Aug. 1942	29 Aug. 1943	29 Nov. 1943
CVA 14	Ticonderoga	Bethlehem Steel Co., Quincy	1 Feb. 1943	7 Feb. 1944	10 Oct. 1944
CVS 15	Randolph		10 May 1943	28 June 1944	9 Oct. 1944
CVS 16	Lexington		15 July 1941	26 Sep. 1942	17 Mar. 1943
AVT 9 (ex-CVS 17)	Bunker Hill		15 Sep. 1941	7 Dec. 1942	24 May 1943
CVS 18	Wasp	New York Navy Yard	18 Mar. 1942	17 Jan. 1943	24 Nov. 1943
CVA 19	Hancock		26 Jan. 1943	24 Jan. 1944	15 Apr. 1944
CVS 20	Bennington		15 Dec. 1942	26 Feb. 1944	6 Aug. 1944
LPH 4 (ex-CVS 21)	Boxer		13 Sep. 1943	14 Dec. 1944	16 Apr. 1945
AVT 10 (ex-CVS 32)	Leyte	Newport News Co.	1 Feb. 1944	23 Apr. 1945	11 Apr. 1946
CVS 33	Kearsarge		21 Mar. 1944	5 May 1945	2 Mar. 1946
CVA 34	Oriskany		1 Mar. 1944	13 Oct. 1945	25 Sep. 1950
CVS 36	Antietam		15 Mar. 1943	20 Aug. 1944	28 Jan. 1945
LPH 5 (ex-CVS 37)	Princeton	Philadelphia Navy Yard	14 Sep. 1943	8 July 1945	18 Nov. 1945
CVA 38	Shangri-La		15 Jan. 1943	24 Feb. 1944	15 Sep. 1944
CVS 39	Lake Champlain		15 Mar. 1943	2 Nov. 1944	3 June 1945
AVT 12 (ex-CVS 40)	Tarawa		1 Mar. 1944	12 May 1945	8 Dec. 1945
LPH 8 (ex-CVS 45)	Valley Forge	Philadelphia Navy Yard	7 Sep. 1944	18 Nov. 1945	3 Nov. 1946
AVT 11 (ex-CVS 47)	Philippine Sea		19 Aug. 1944	5 Sep. 1945	11 May 1946

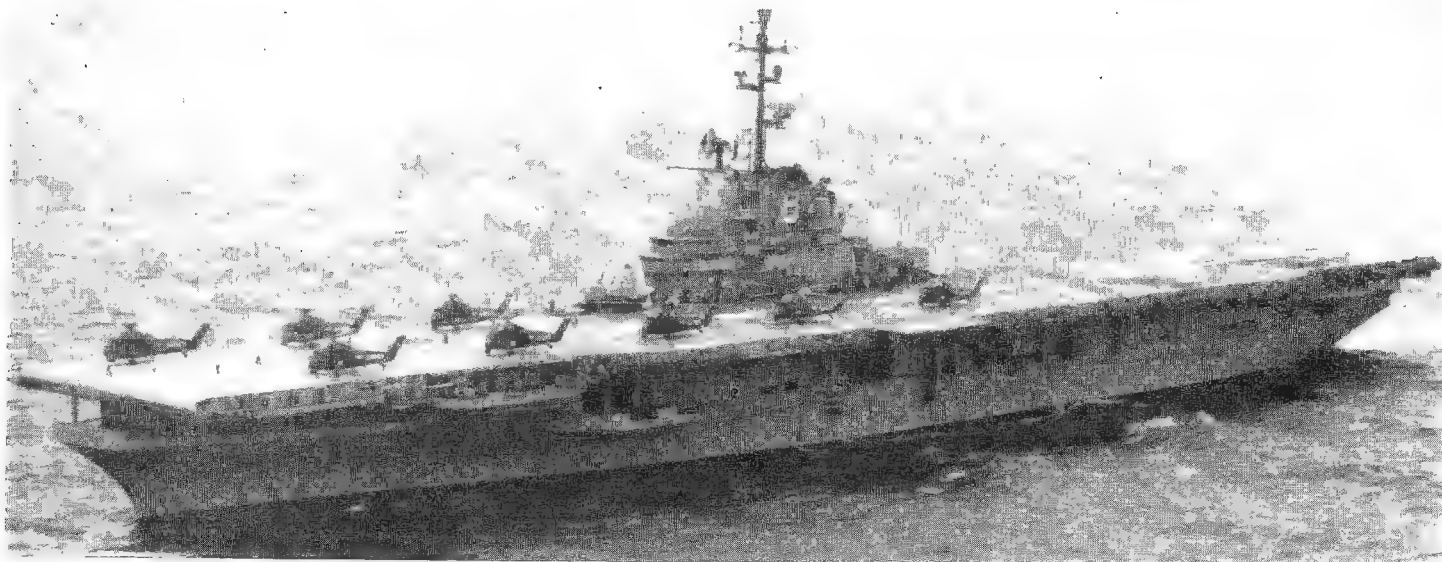
CVA = Attack Aircraft Carrier
CVS = ASW Support Aircraft Carrier

LPH = Amphibious Assault Ship
AVT = Auxiliary Aircraft Transport



BOXER

1965, United States Navy, Official



VALLEY FORGE

1962, courtesy Mr. W. H. Davis

Gunnery 18 "Essex" Class—continued

The number of 5-inch guns varies. *Randolph* has 8—5 inch and *Essex* 4—5 inch. *Yorktown* has no 5 inch guns on the starboard side aft. The LPHs are the only ships of this type retaining 5 inch guns on the flight deck (see photograph of *Boxer* above). The 3 inch guns have been removed to further reduce topside weight.

Conversion

The FRAM II conversion which *Randolph* underwent at Norfolk Naval Shipyard included closed circuit television for briefing pilots and a modern combat information centre for anti-submarine warfare missions. *Kearsarge* underwent FRAM II conversion in 1961-62 and *Bennington* and *Valley Forge* in 1963. *Boxer* and *Princeton* also completed a 7-month FRAM II conversion. *Essex* underwent a 6-month modernisation including the installation of sonar.

Wasp was the first modernised carrier to get CVS status. *Antietam* has an earlier version of the angled deck, the first experimental angled deck installation, a British invention.

The island superstructure of *Philippine Sea* was modified, funnel and mast being united, with twin clinker screen on the funnel. *Princeton* and *Leyte* were similarly modified.

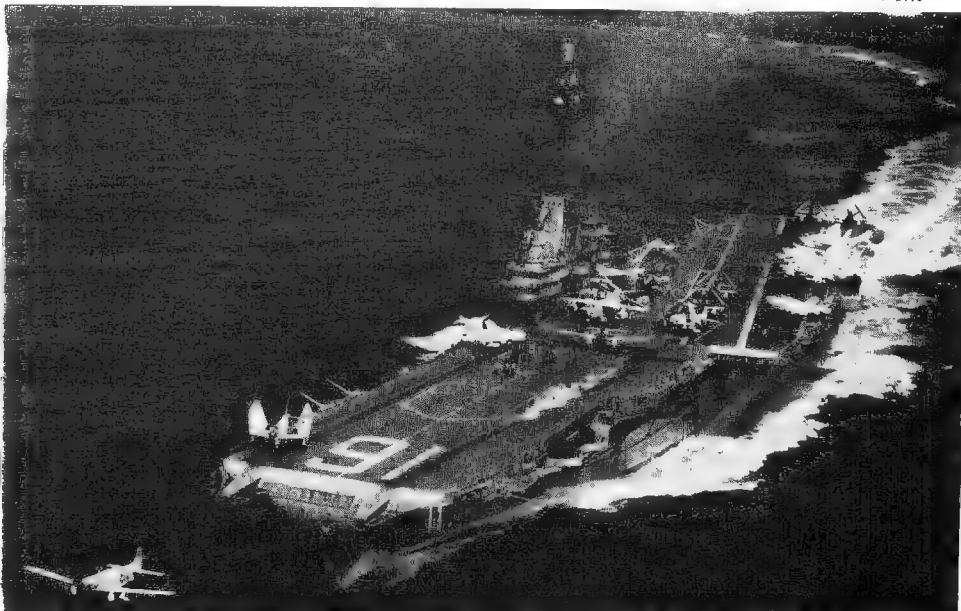
Antietam, *Boxer*, *Bunker Hill*, *Lake Champlain*, *Leyte*, *Philippine Sea*, *Princeton*, *Tarawa* and *Valley Forge* never received major modernisation. All except *Antietam* have their original axial decks. *Lake Champlain* received an up-dating refit but neither angled deck nor hurricane bow.

All the other nine CVSs were extensively modernised, see dates and particulars under "Oriskany" Type on previous page.

Most of these 18 ships still have hydraulic catapults. *Bunker Hill* was towed to San Francisco in 1965 for \$1,250,000 reconditioning; after 18 years in the reserve fleet, flight deck repaired and 12,000 volt shore electrical system installed. In Sep. 1965 she was towed to San Diego to become a floating electronics laboratory to provide simulated at-sea conditions for tests on newly designed electronics equipment. She will be moored for the entire test period and propulsion equipment will not be activated.

Reclassification

All the above ships originally designated CV, were redesignated CVA (Attack Aircraft Carriers) in Oct. 1952, but *Antietam*, *Bunker Hill* and *Leyte* were again redesignated from CVA to CVS (ASW Support Aircraft Carriers) in July 1953; *Princeton* and *Valley Forge* in Jan. 1954; *Tarawa* on 10 Jan. 1955; *Philippine Sea* on 5 Nov. 1955; *Boxer* on 1 Feb. 1956; *Wasp* on 1 Nov. 1956; *Lake Champlain* on 1 Aug. 1957; *Yorktown* on 1 Sep. 1957; *Hornet* on 27 June 1958; *Kearsarge* on 1 Oct. 1958; *Randolph* on 31 Mar. 1959; *Bennington*



LEXINGTON

1965, United States Navy, Official

on 30 June 1959; *Essex* on 8 Mar. 1960; *Intrepid* on 31 Mar. 1962; and *Lexington* on 1 Oct. 1962. *Boxer* and *Princeton* were reclassified as LPH on 30 Jan. 1959 and 2 Mar. 1959, respectively and *Valley Forge* in June 1961. *Bunker Hill*, *Leyte* and *Philippine Sea* were reclassified as AVT on 15 May 1959 and *Tarawa* in 1961.

Angled Deck

The flight deck of *Antietam* angles 8 degrees, 9 minutes to port with arresting gear orientated to the centre line of her angled deck. The angled deck, which although a British invention, was first installed in *Antietam* (in Oct.-Dec. 1962) has since been incorporated into the design of all new aircraft carriers.

Sponsons

The stern of *Bennington* and other carriers is smoothed off and streamlined after remove of the 3-inch gun housing and overhanging sponsons.

Photographs

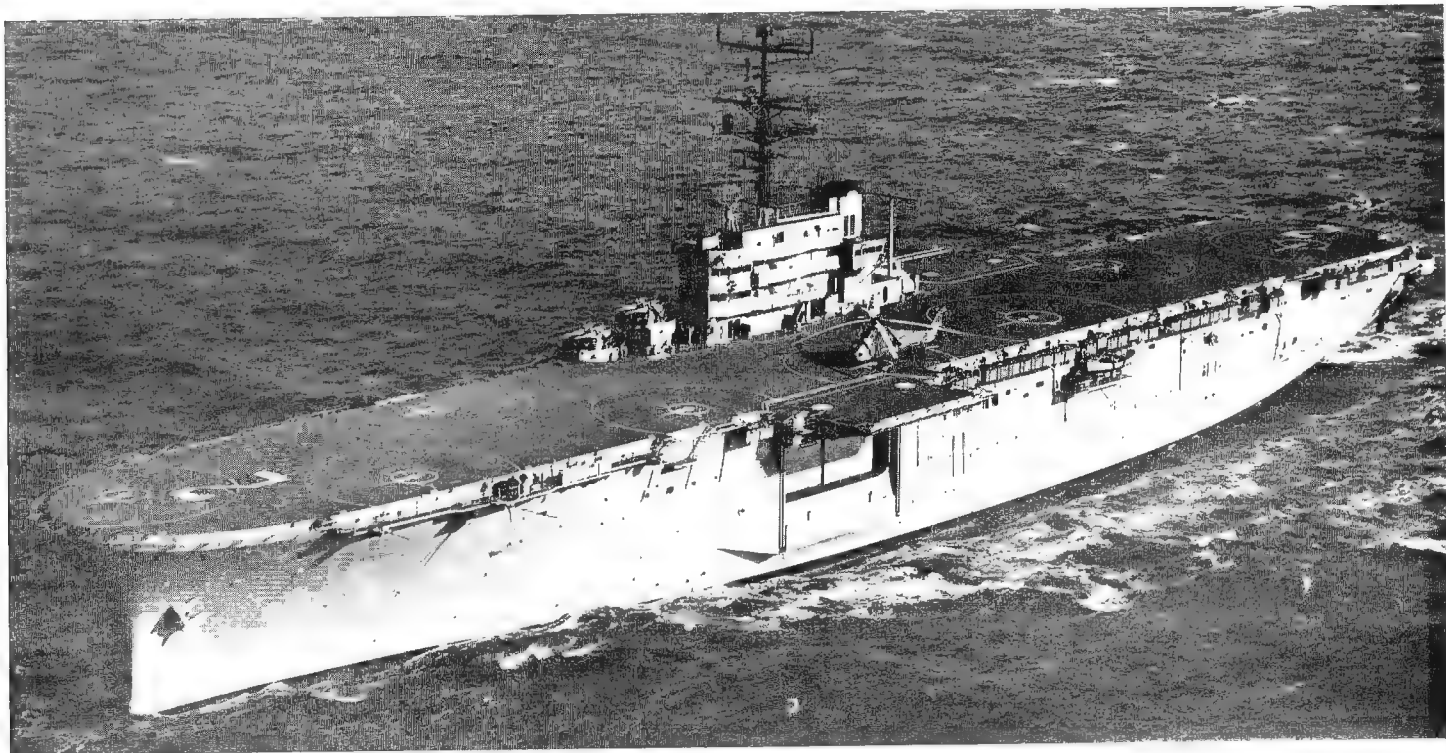
Port broadside aerial view of *Randolph* in the 1957-58 edition. Port quarter overhead view of *Randolph* showing angled deck and aircraft, and port bow oblique aerial view of *Kearsarge* in the 1958-69 and 1959-60 editions. Large starboard broadside view of *Randolph* firing a Regulus guided missile, and starboard bow surface view of *Tarawa* in the 1957-58 to 1959-60 editions. Port bow overhead view of *Antietam* and starboard broadside surface view of *Wasp* in the 1953-54 to 1959-60 editions. Aerial broadside view of *Philippine Sea* with six helicopters flying in formation in the 1957-58 to 1961-62 editions. Port bow oblique aerial view of *Bennington*, showing hurricane bow and angled deck in the 1961-62 to 1963-64 editions. Port quarter oblique aerial view of *Yorktown* and port bow oblique aerial view of *Essex* in the 1959-60 to 1964-65 editions.

AMPHIBIOUS ASSAULT SHIPS (LPH)



OKINAWA

1963, United States Navy, Official



IWO JIMA

1963, United States Navy, Official

5 + 2 New Construction

GUADALCANAL GUAM	IWO JIMA OKINAWA	TRIPOLI
Displacement:	10,700 tons light, 17,000 tons standard (18,340 tons full load)	
Dimensions:	Length: 592 (w.l.), 600 (o.a.) feet; Beam: 84 (hull), 105 (max.) feet Draught: 25 feet	
Guns:	8—3 inch, 50 cal. (4 twin)	
Aircraft:	24 large marine amphibious transport helicopters	
Machinery:	Geared turbines, 1 shaft, S.H.P.: 22,000—20 kts. sustained speed	
Boilers:	2 (Babcock & Wilcox in Guam, Combustion Engineering in Guadalcanal, Iwo Jima, Okinawa)	
Complement:	528 crew (48 officers, 480 men) plus accommodation for 2,090 troops (190 officers, 1,900 men)	

General
Helicopter amphibious assault ships designed to support the Marine Corps vertical envelopment concept. Each transports the assault force of personnel, essential combat supplies and equipment and transport helicopters. Can carry one Marine battalion landing team. They have command facilities, cargo and material handling equipment and adequate space for embarked troops and vehicles. The flight and hangar decks provide for helicopter operations and maintenance. Two deck-edge elevators. *Iwo Jima* was the first amphibious assault ship to be built from the keel up for helicopter use. She cost \$40,000,000.

Construction
Iwo Jima was built under the Fiscal Year 1958 Programme. *Okinawa* under the 1959 programme, *Guadalcanal* under the 1960 programme. *Guam* under the 1962 programme. *Tripoli* under the 1963 programme and LPH 10 under the 1965 programme, and another LPH under the 1966 programme.



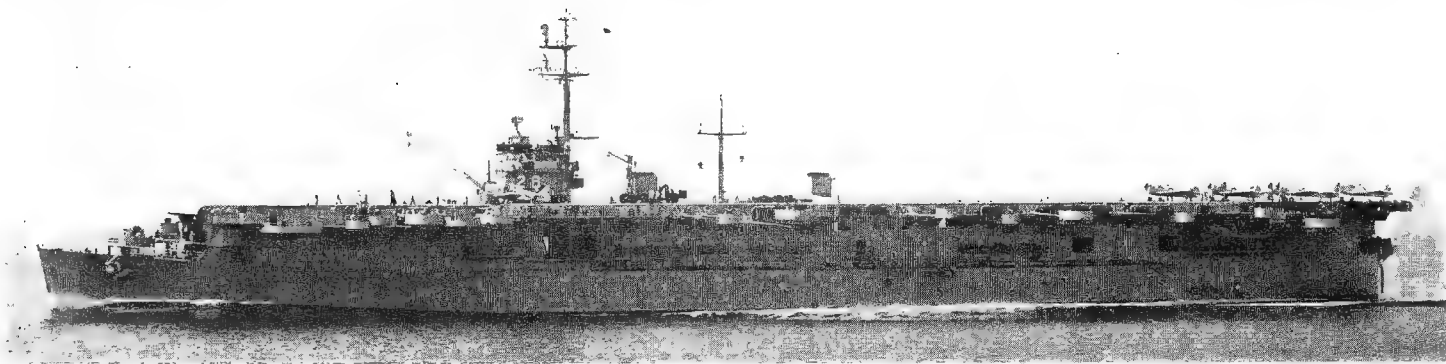
GUADALCANAL

1965, Wright & Logan

Nomenclature		Class		
Amphibious assault ships are named after battles or operations in which Marine Corps forces made history.		<i>Iwo Jima</i> , <i>Okinawa</i> and <i>Guadalcanal</i> are the prototype class, <i>Guam</i> and <i>Tripoli</i> are a modified class.		
LPH 2	<i>Iwo Jima</i>	Puget Sound Naval Shipyard	13 Feb. 1959	17 Sep. 1960
LPH 3	<i>Okinawa</i>	Philadelphia Naval Shipyard	1 Apr. 1960	19 Aug. 1961
LPH 7	<i>Guadalcanal</i>	Philadelphia Naval Shipyard	1 Sep. 1961	16 Mar. 1963
LPH 9	<i>Guam</i>	Philadelphia Naval Shipyard	15 Nov. 1962	22 Aug. 1964
LPH 10	<i>Tripoli</i>	Ingalls Shipbuilding Corp.	15 June 1964	31 July 1965
LPH 11		Philadelphia Naval Shipyard		

* Officially estimated dates

AIRCRAFT TRANSPORTS (AVT) Ex-Aircraft Carriers (CVL)



CABOT

Added 1957, United States Navy, Official

Auxiliary Aircraft Transports (AVT)
Former Aircraft Carriers (CVL)
3 "Cabot" Class

CABOT (ex-Wilmington)	SAN JACINTO (ex-Reprisal, ex-Newark)
MONTEREY (ex-Dayton)	
Displacement:	11,000 tons standard (15,800 tons full load)
Dimensions:	Length: 600 (w.i.), 623 (o.a.) feet. Beam: 71½ feet (hull). Width: 109 (extreme) feet. Draught: 26 (max.) feet
Guns:	16—40mm. AA. 40—20mm. AA. See General
Aircraft:	General Electric geared turbines. 4 shafts. S.H.P.: 100,000=32 kps.
Machinery:	4 Babcock & Wilcox
Boilers:	See General
Complement:	See General

General
Laid down as light cruisers of the "Cleveland" class, described on a later page, but completed as aircraft carriers. Originally carried over 40 aircraft. Princeton

(CVL 23 ex-Tallahassee), was lost in action. Cabot was converted to ASW, i.e. modified to specialise in anti-submarine warfare, and classed as a "Hunter-Killer Carrier" with strengthened flight and hangar decks, large port side catapult, revised magazine arrangements, new electronic gear corrected stability to counter added top weight, and a maximum of 26 aircraft. She was practically modernised to a new type. As aircraft carriers the original complement was 1,109 (159 officers and 950 men) to 1,183 (peace scheme), 1,400 (war scheme). All three ships are decommissioned.

Transfers
Langley was transferred to the French Navy in 1951 under the Mutual Defense Assistance Program but was returned to the U.S.A. in Mar. 1963 stricken from the Navy List in June 1963, and later scrapped. Belleau Wood (CVL 24), transferred to France in Sep. 1953 on loan for five years, subsequently extended for five more, was returned to the U.S.A. in Sep. 1960 and stricken.

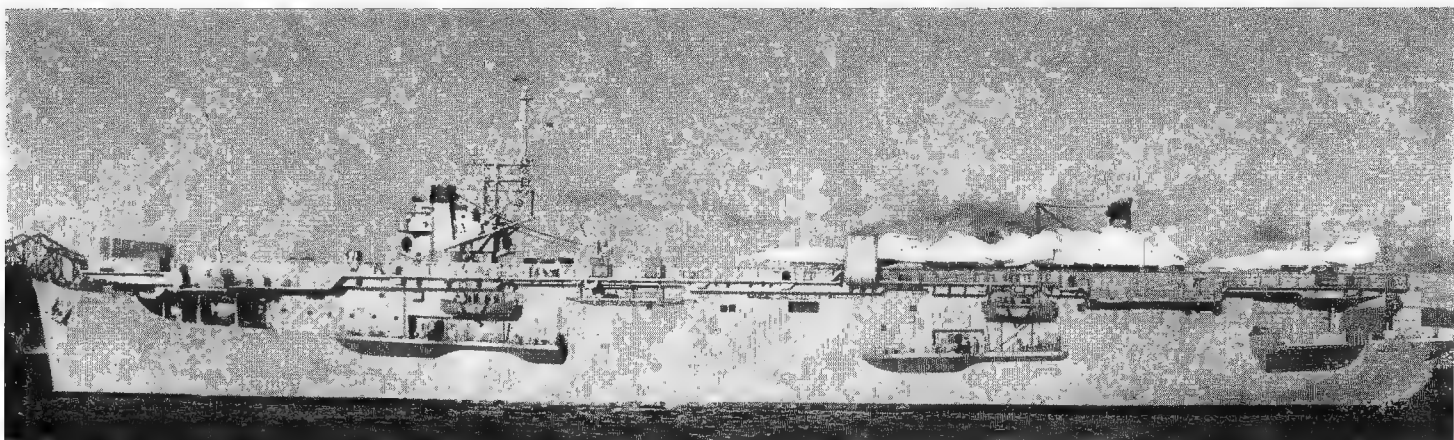
No.	Name	Builders	Laid down	Launched	Completed
AVT 2 (ex-CVL 26)	Monterey	New York S.B. Corpn.	29 Dec. 1941	28 Feb. 1943	17 June 1943
AVT 3 (ex-CVL 28)	Cabot		16 Aug. 1942	4 Apr. 1943	24 July 1943
AVT 5 (ex-CVL 30)	San Jacinto		26 Oct. 1942	26 Sep. 1943	15 Dec. 1943

Gunnery
Originally designed to include 4—5 inch in armament. Funnels
Since conversion Cabot has only two of her original four funnels. Monterey also has only two funnels. Reclassification
All were reclassified from small aircraft carriers (CVL) to aircraft transports (AVT) on 15 May 1959. Drawing
A port elevation and plan, scale of 128 feet=1 inch, appears in the 1959-60 and earlier editions.

Photographs
A port bow aerial photograph of Monterey appears in the 1957-58 edition.

Disposals
Bataan, AVT 4, was stricken on 1 Sep. 1959 and Cowpens, AVT 1, on 1 Nov. 1959. Independence CVL 22, was expended in atom bomb and radiological experiments from 1946 to 30 Jan. 1951.

AIRCRAFT FERRIES (AKV). Ex-Escort Aircraft Carriers (CVE)



BRETON

1964, United States Navy, Official

Rated as Aircraft Ferrys (AKV)
Former Escort Aircraft Carriers (CVE)
4 "Bogue" Class

BRETON	CARD	CORE	CROATAN
Displacement:	9,800 tons standard (15,700 tons full load)		
Dimensions:	Length: 465 (pp.), 496 (o.a.) feet. Flight deck: 450 feet. Beam: 69½ feet (hull). Width: 112 feet (extreme). Draught: 26 (max.) feet		
Guns:	Removed. See Gunnery		
Aircraft:	See General		
Machinery:	Westinghouse geared turbines S.H.P.: 8,500=18 kts.		
Boilers:	2 Foster-Wheeler type		
Complement:	75 (see General)		

General
All converted from mercantile hulls built by Seattle-Tacoma S.B. Corpn. Vary slightly in appearance. As escort carriers they carried 30 aircraft and had a complement of 800 officers and men. Named after sounds. Equipped with derricks for retrieving seaplanes and loading and unloading aircraft at the pier side. Card sank in mud of Saigon River on 2 May 1964 after external bomb explosion, but was raised and repaired. Reclassification
Reclassified from Escort Aircraft Carriers (CVE) to Escort Helicopter Aircraft Carriers (CVHE) on 12 June 1955, to CVU on allocation as MSTs aircraft ferrys on 1 July 1958 and to AKV on 7 May 1959.

No.	Name	Laid down	Launched	Completed
AKV 40 (ex-CVU 11, ex-CVHE 11)	Card	27 Oct. 1941	21 Feb. 1942	8 Nov. 1942
AKV 41 (ex-CVU 13, ex-CVHE 13)	Core	2 Jan. 1942	15 May 1942	10 Dec. 1942
AKV 42 (ex-CVU 23, ex-CVHE 23)	Breton	25 Feb. 1942	27 June 1942	12 Apr. 1943
AKV 43 (ex-CVU 25, ex-CVHE 25)	Croatan	15 Apr. 1942	3 Aug. 1942	28 Apr. 1943

Disposals
Sister ships Altamaha, CVHE 18, Barnes, CVHE 20, Bogue, CVHE 9, Capahee, CVHE 12, and Nassau, CVHE 16, also half-sister Prince William, CVHE 31, were stricken from the list on 1 Mar. 1959.

Of the "Suwannee" class, Chenango, CVHE 28, Santee, CVHE 29 and Suwanee, CVHE 27 were also stricken from the list on 1 Mar. 1959.

Gunnery
Unarmed while designated USNS with civil service crews. Formerly mounted one or two 5-inch guns, 16—40 mm. AA. guns, and 20—20 mm. AA. guns.

Battleships
The battleships IOWA, BB 61, MISSOURI, BB 63, NEW JERSEY, BB 62, and WISCONSIN, BB 64 of the "Iowa" class were all decommissioned in 1955-58 and have been laid up ever since. (See full particulars, photographs and drawings in the 1961-62. edition). Disposals
The battleships Alabama, BB 60, Indiana, BB 58, Massachusetts, BB 59, of the "Indiana" Class, and South Dakota, BB 57, were all stricken from the List

of Naval Vessels on 1 June 1962. (South Dakota was sold for scrap in 1964).
The battleships North Carolina, BB 55, and Washington, BB 56, of the "North Carolina" class were stricken from the List of Naval Vessels at the end of 1960.
The battle cruisers Alaska, CB 1 and Guam CB 2, of the "Alaska" Class, officially rated as "Large Cruisers", were also stricken in 1960. (Their uncompleted sister ship Hawaii, CB 3, was stricken on

9 June 1958).
The battleships, California, BB 44, and Tennessee, BB 43, of the "Tennessee" class; Colorado, BB 45, and Maryland, BB 46, of the "Colorado" class; and West Virginia, BB 48, were scrapped in 1959 (stricken from the Navy List on 1 Mar. 1959).
(The following are State Battleship Memorials:—Alabama, BB 60; Massachusetts BB 59 North Carolina, BB 55; and Texas, BB 35)

Aircraft Ferrys. Ex-Escort Aircraft Carriers—continued



BADOENG STRAIT

Added 1957, United States Navy, Official

11 rated as Aircraft Ferrys (AKV)

1 rated as Major Communications Relay Ship (AGMR)

Former Escort Carriers (CVE, CVHE)

12 "Commencement Bay" Class

- ANNAPOLIS (ex-Gilbert Islands, ex-St. Andrew's Bay)
- BADOENG STRAIT (ex-San Alberto Bay)
- COMMENCEMENT BAY (ex-St. Joseph's Bay)
- CAPE GLOUCESTER (ex-Willapa Bay)
- KULA GULF (ex-Vermilion Bay)
- RABAU
- POINT CRUZ (ex-Trocadero Bay)
- REDOVA (ex-Mosser Bay)
- SAIDOR (ex-Salter Bay)
- SIBONEY (ex-Frosty Bay)
- TINIAN
- VELLA GULF (ex-Totem Bay)

- Displacement: 11,373 tons standard (24,275 tons full load) Annapolis 22,500 tons full load
- Dimensions: Length: 557 (o.a.) feet. (Annapolis 563 feet). Beam: 75 feet (hull). Width: 105 feet (extreme). Draught 30½ feet
- Guns: 1—5 inch, 38 cal., 24—40 mm. AA. (see Gunnery notes below) (Annapolis 8—3 inch, 50 cal. (4 twin)
- Aircraft: See General
- Machinery: Geared turbines 2 shafts. S.H.P.: 16,000=18 kts.
- Boilers: 4
- Complement: Annapolis: 710 (44 officers and 666 men). See General

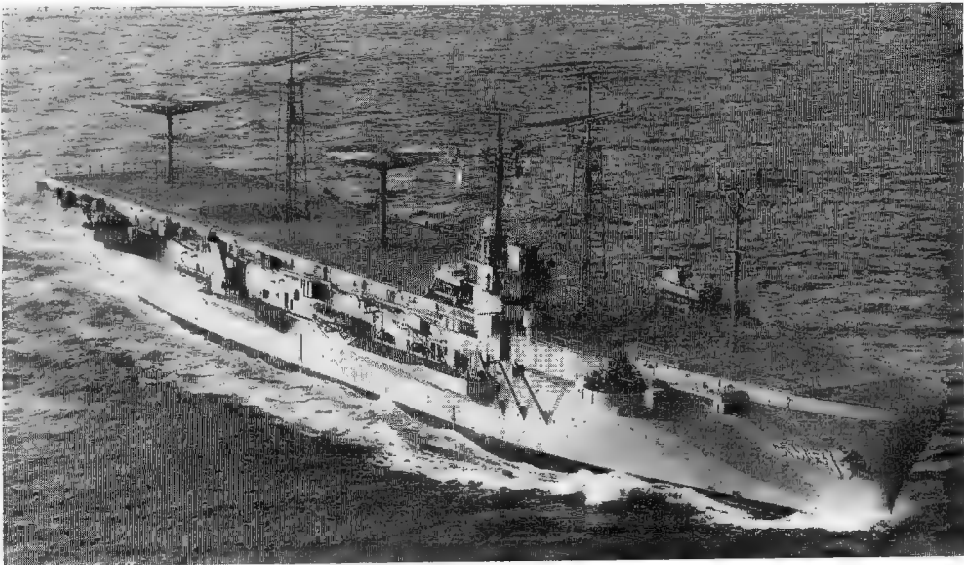
General
All built by Todd Pacific Shipyards, Tacoma. Design modelled on that of "Suwanee", class mercantile hull conversions, see 1958-59 and earlier editions. Originally carried 34 aircraft. As escort aircraft carriers the complement was 924 (peace) and over 1,000 (war). With the decommissioning of Siboney and Badoeng Strait in 1956-57 all of this class were out of commission, in reserve; but Kula Gulf was reactivated in 1965 for MSTs operation, designated T-AKV 8, USNS, unarmed, civil service crew.

Conversion
Gilbert Islands was converted into a Major Communications Relay Ship (AGMR) in the Fiscal Year 1963. Conversion Programme by New York Naval Shipyard, the contract being awarded on 22 Aug. 1962 and she recommissioned on 7 Mar. 1964, equipped with 24 radio transmitters. Vella Gulf was to have been converted to AGMR in the Fiscal Year 1964 Conversion Programme; but her conversion was never commenced (she was to have been renamed Arlington), and instead Saipan, see next page, was selected for the second AGMR. The AGMR type is capable of supplying vital communications services in any sea area in the world.

Reclassification
Seven Escort Aircraft Carriers (CVE) of this class were reclassified as Escort Helicopter Aircraft Carriers (CVHE) on 12 June 1955: Block Island was reclassified as LPH on 22 Dec. 1957, but in 1958 her conversion to Helicopter Amphibious Assault Ship was cancelled as a measure of economy and she was reclassified as an AKV on 7 May 1959 when all the remaining 18 ships of the class were also reclassified as AKVs. Gilbert Islands was reclassified as AGMR on 1 June 1963 and renamed Annapolis.

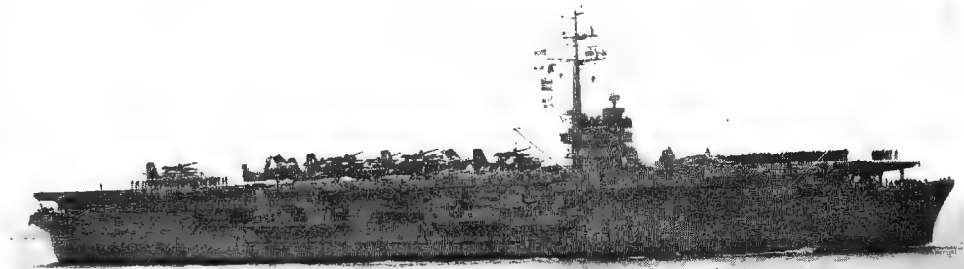
Gunnery
The after starboard 5 inch gun was removed from the former active units. No. 1 40 mm. mounting and twelve 20 mm. twin mounts latterly carried, instead of former total of 30, were removed. Four rocket launchers were formerly located amidships, two on each side. Annapolis was rearmed in 1963-64.

Class
Sixteen more ships of this class, Bastogne, Enlwetok, Lingayen, Okinawa, and CVE 128-139, were cancelled in Aug. 1945.



ANNAPOLIS

1964, "Our Navy" Photo



SIBONEY

Added 1961, Official

Disposals
Block Island, AKV 38 (ex-LPH 1, CVE 106) was stricken on 1 July 1959. Mindoro, AKV 20 (ex-CVE 120) on 1 Dec. 1959 and Balroko, AKV 15 (ex-CVE 115), Palau, AKV 22 (ex-CVE 122), Puget Sound, AKV 13 (ex-CVHE 113) and Vella Gulf, AKV 11 (ex-CVHE 111) in 1960. Sicily, AKV 18 (ex-CVE 118) in 1961 and Gilbert Islands, AKV 39 (ex-CVE 107) and Saterso Bay, AKV 10 (ex-CVE 110) on 1 June, 1961. Vella Gulf and Gilbert Islands, however, were reinstated on the Navy List on 1 Nov. 1961.

Disposals of "Anzio" Class
The sole survivor of the 50 former escort aircraft carriers of the "Anzio" class, Thetis Bay, LPH 6 (ex-CVHA 1, ex-CVE 90) converted into an Amphibious Assault Ship in 1955-56, was stricken from the Navy List on 1 Mar. 1964; but in Aug. 1965 approval was given for her loan to Spain for 5 years. For disposals of the other ships of the "Anzio" class, see page 320, 1963-64 edition.

No.	Name	Laid down	Launched	Completed
AKV 37 (ex-CVHE 105)	Commencement Bay	23 Sep. 1943	9 May 1944	27 Nov. 1944
AGMR 1 (ex-AKV 39, ex-CVE 107)	Annapolis	29 Nov. 1943	20 July 1944	5 Feb. 1945
AKV 8 (ex-CVE 108)	Kula Gulf	16 Dec. 1943	15 Aug. 1944	12 May 1945
AKV 9 (ex-CVHE 109)	Cape Gloucester	10 Jan. 1944	12 Sep. 1944	5 Mar. 1945
AKV 11 (ex-CVHE 111)	Vella Gulf	7 Mar. 1944	19 Oct. 1944	9 Apr. 1945
AKV 12 (ex-CVE 112)	Siboney	1 Apr. 1944	9 Nov. 1944	14 May 1945
AKV 14 (ex-CVE 114)	Redova	15 June 1944	28 Dec. 1944	22 Oct. 1945
AKV 16 (ex-CVE 116)	Baloeng Strait	18 Aug. 1944	15 Feb. 1945	14 Nov. 1945
AKV 17 (ex-CVHE 117)	Saidor	29 Sep. 1944	17 Mar. 1945	4 Sep. 1945
AKV 19 (ex-CVE 119)	Point Cruz	4 Dec. 1944	18 May 1945	16 Oct. 1946
AKV 21 (ex-CVHE 121)	Rabaul	29 Jan. 1945	14 July 1945	30 Aug. 1946
AKV 23 (ex-CVHE 123)	Tinian	20 Mar. 1945	5 Sep. 1945	30 July 1946

CVHE = Helicopter Escort Aircraft Carrier
CVE = Escort Aircraft Carrier

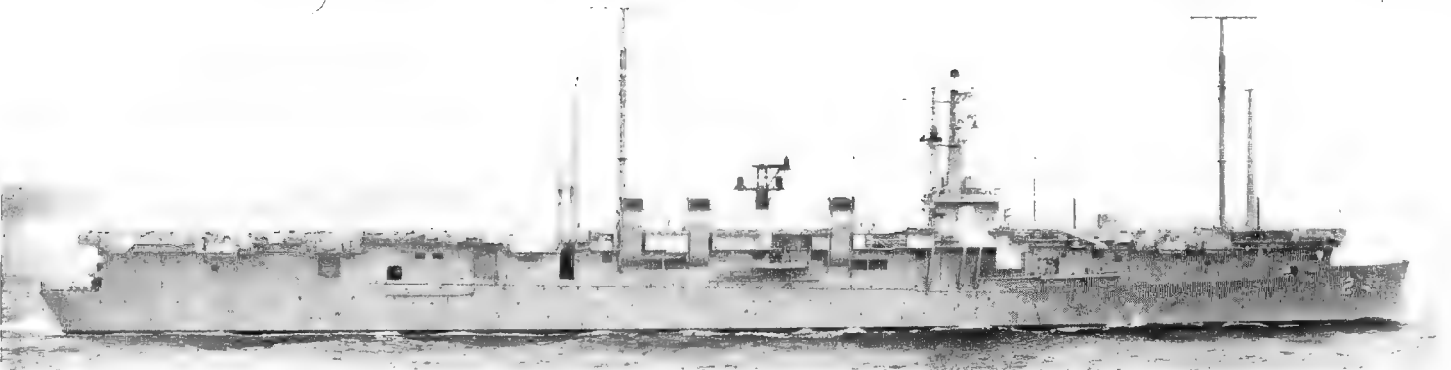
AKV = Cargo Ship and Aircraft Ferry
AGMR = Major Communications Relay Ship

COMMAND SHIP (CC) and MAJOR COMMUNICATION RELAY SHIP (AGMR)



WRIGHT

1964, United States Navy, Official



WRIGHT

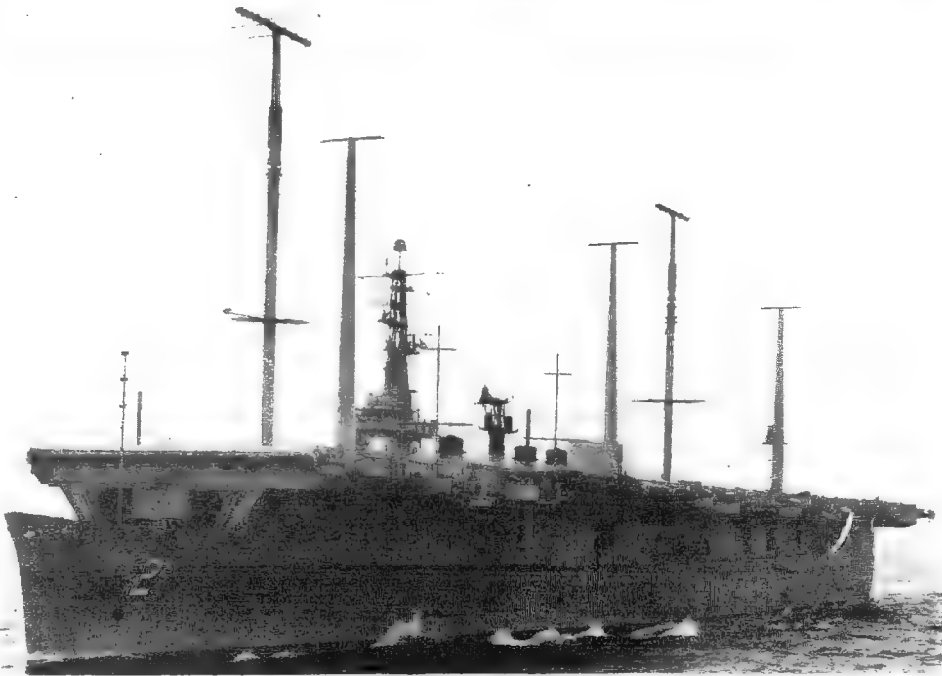
1963 United States Navy, Official (direct from U.S.S. Wright, courtesy of Commanding Officer)

2 Ex-Auxiliary Aircraft Transports (AVT),
Former Aircraft Carriers (CVL)

Name:	ARLINGTON (ex-Saipan)	WRIGHT
No.:	AGMR 2 (ex-CC 3, ex-AVT 6, ex-CVL 48)	CC 2 (ex-AVT 7, ex-CVL 49)
Builders:	New York Shipbuilding Corporation, New Jersey	New York Shipbuilding Corporation, New Jersey
Laid down:	10 July 1944	21 Aug. 1944
Launched:	8 July 1945	1 Sep. 1945
Completed:	14 July 1946	9 Feb. 1947
Converted:	1963-1964	1962-1963
Displacement:	14,500 tons standard (19,600 tons full load)	
Dimensions:	Length: 664 (pp.), 684½ (o.a.) feet. Beam: 77½ feet (hull). Width: 109 (extreme) feet. Draught: 28 feet	
Guns:	8—40 mm. AA. in 4 twin mountings (as converted)	
Aircraft:	Helicopters	
Machinery:	G.E. geared turbines. 4 shafts. S.H.P.: 12,000=33 kts.	
Boilers:	4 Babcock & Wilcox	
Oil fuel:	3,371 tons	
Complement:	746 (ship's company); 1,720 as command ship, including commands and staff (53 officers, 1,103 men)	

General
Modifications of the "Baltimore" class heavy cruiser design laid down and built as aircraft carriers (CVLs). Originally carried over 50 aircraft. The hull below the main (hangar) deck duplicates that of the Camden-built heavy cruisers. Both ships had four funnels but had the fore funnel removed (see two photos of Saipan and another photo of Wright in the 1957-58 edition). As aircraft carriers the original war complement was 1,821 (243 officers and 1,578 men) but only 775 of 1,007 enlisted men were retained in Saipan as training carrier.

Conversion
Wright was converted into a command ship at Puget Sound Naval Shipyard under the Fiscal Year 1962 Conversion Programme at a cost of \$25,000,000. She re-commissioned on 11 May 1963. She has five glass masts 33 to 83 feet in height to support antennae. The tallest antennae is 114 feet from deck. Highest point above the waterline is 156 feet. She is the Navy's second fully equipped command post. The conversion of Saipan into a Command Ship was authorised in Fiscal Year 1963 Conversion Programme. The contract was awarded on 13 Feb. 1963 to Alabama Drydock and Shipbuilding Company, Mobile, Alabama, for the activation, repair and conversion of Saipan at a total fixed price of \$9,329,173. The ship's pri-



WRIGHT

1964, United States Navy, Official

mary function after conversion was to serve as an operations communications headquarters ship with the fleet. Her conversion was halted in Feb. 1964. She is to complete conversion as a Major Communications Relay Ship (AGMR), for which \$26,886,424 was authorised in Sep. 1964. She was reclassified as AGMR 2, and renamed Arlington in Apr. 1965. She is scheduled to commission on 10 Dec. 1965.

Operational
The mission of the command ship is to provide command and control facilities to top echelon commands and staffs. The ship will go to sea with the most extensive communications facilities ever put aboard ship. Its "voice of command" can be sent to any ship, aircraft or station anywhere in the world. The command spaces have facilities for theatre-type presentations similar to command posts ashore, including projection equipment and motion picture screens. An entire bulkhead is used to display large status boards and maps which are mounted on tracks and can be quickly rolled into view. The concentrated operational control spaces include rooms for war

operations, plotting, chart and graphics, emergency action, briefing and conferences. On the ship's antennae deck are arranged the most powerful transmitting antennae ever installed in a naval vessel. More than 200 officers and men are assigned to operate and maintain these antennae and their associated radio and communications equipment. An entire room is given over to the ship's teletype printers, each of which can record incoming messages at 100 words per minute. The ship is capable of handling as many messages in a day as a major shore-based communications station.

Reclassification
Both ships were reclassified from aircraft carriers (CVL) to aircraft transports (AVT) on 15 May 1959. Wright was reclassified from AVT 7 to CC 2 on 1 Sep. 1962 and Saipan from AVT 6 to CC 3 on 1 Jan. 1964, and to AGMR 2 on 3 Sep. 1964.

Drawing
Port elevation and plan of these ships as aircraft carriers appears in the 1963-64 and earlier editions.

COMMAND SHIP (CC) Heavy Cruiser Type



NORTHAMPTON (radar on foremast now replaced by a bigger scanner)

1964, United States Navy, Official

Formerly rated as
Tactical Command Ship (CLC)
(Ex-Cruiser, Task Fleet Command Ship)

I "Northampton" Type

NORTHAMPTON

No.: CC 1 (ex-CLC 1, ex-CA 125)
Builders: Bethlehem Co., Quincy, Mass.
Laid down: 31 Aug. 1944
Launched: 27 Jan. 1951
Completed: 7 Mar. 1953

Displacement: 14,700 tons standard (17,200 tons full load)
Dimensions: Length: 676 (o.a.) feet. Beam: 71 feet. Draught: 29 feet
Guns: 4—5 inch, 54 cal. d.p. in single mountings (see Gunnery notes)
Aircraft: 2 helicopters
Armour: 6" side 3"+2" decks
Machinery: G.E. geared turbines. 4 shafts. S.H.P.: 120,000=33 kts, 4 Babcock & Wilcox
Boilers: 2,500 tons
Oil fuel:
Complement: Allowance: 62 officers, 1,175 men. Accommodation for 227 officers, 1,450 men.

General

This vessel was originally designed as a heavy cruiser of the modified "Oregon City" class numbered CA 125. She was 57 per cent constructed as such when she was cancelled on 11 August 1945. She was re-ordered 1 July 1948, and re-designed as a Task Force (later Tactical) Command Ship with the new rating of CLC 1, for the exclusive use of Task Force commanders in conducting either operations of fast moving carrier task forces or an amphibious assault. Accommodation and equipment were modified accordingly. She is fully air-conditioned with an installation at least as extensive as that of the



NORTHAMPTON (showing former large radar scanner atop the foremast)

1959 Ted Stone

larger heavy cruiser *Salem* to which she approximates in displacement. She was commissioned on 7 Mar. 1953, to fulfil the same functions as an AGC, i.e. as Operations-Communications-Headquarters Ship, but has more speed, manoeuvrability, armament and anti-aircraft fire than an AGC. Designed to resist atomic attack. Has large installation of newly developed electronic equipment, a vast communications network, an imposing array of electronic antennae, and featured one of the largest seaborne radar aerials in the world, but this was removed in 1963. She is one deck higher than a normal cruiser to provide for additional office space, and has the tallest unsupported mast afloat (125 feet). Seven months trials to Nov. 1954. First operational assignment was to Atlantic Fleet Amphibious Force as temporary flagship in Nov. 1954. Has served as Second Fleet flagship, based at Norfolk, Va. She was reclassified as Command Ship (CC) on 15 Apr. 1961, and was relieved as 2nd Fleet Flagship in Oct. 1961.

Gunnery

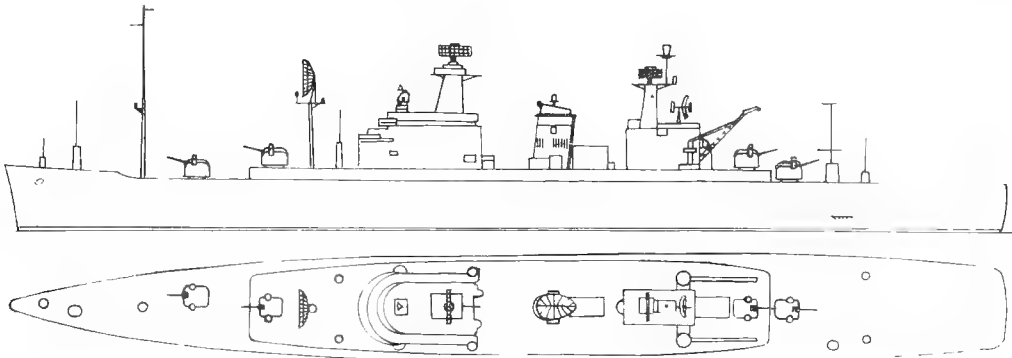
The main armament comprises four 5 inch dual purpose guns disposed in single mountings two forward and two aft. They have a rate of fire of 54 rounds per minute. The secondary armament comprised eight 3 inch, 70 cal. anti-aircraft weapons, also of a new pattern, disposed in twin turrets, two on each side amidships abreast the funnel, but these were removed in 1962 as they presented a major maintenance problem.

Photographs

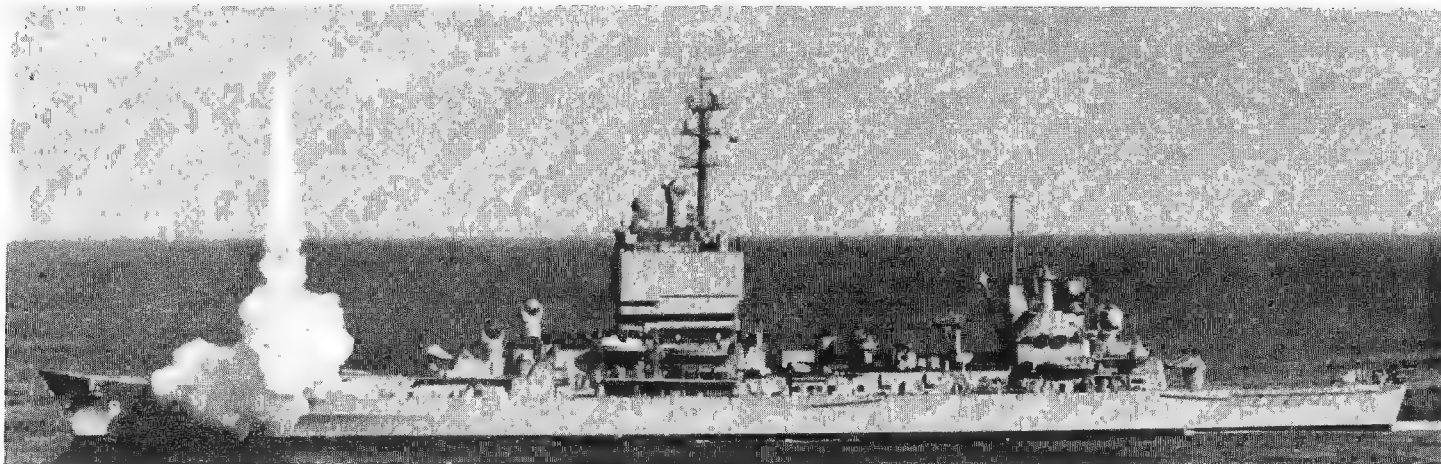
A starboard bow oblique aerial view appears in the 1957-58 edition, a starboard broadside silhouette view in the 1958-59 and 1959-60 editions, a large starboard oblique view in the 1957-58 to 1963-65 editions, and a starboard bow oblique aerial view in the 1963-64 edition.

Drawing

Port elevation and plan. Redrawn in 1965. Scale: 128 feet=1 inch.



NUCLEAR POWERED GUIDED MISSILE CRUISER (CGN)



LONG BEACH (No. 1 "Terrier" being fired off the starboard side forward)

1965, United States Navy, Official

LONG BEACH

No.:	CGN 9 (ex-CGN 160)
Builders:	Fore River Shipyard of Bethlehem Steel Company, Quincy, Mass.
Engineers:	Westinghouse Electric Corporation & General Electric Company, West Lynn, Mass.
Laid down:	2 Dec. 1957
Launched:	14 July 1959
Completed:	1 Sep. 1961
Displacement:	14,200 tons standard, 15,000 tons normal (15,947 tons full load)
Dimensions:	Length: 72½ feet. Beam: 73½ feet. Draught: 32 feet
Guns:	2—5 inch, 38 cal. in single mountings amidships (see <i>Gunnery</i>)
Guided weapons:	1 twin launcher aft for "Talos" missiles 2 twin launchers forward for Advanced "Terrier" missiles (see <i>Guided Missiles</i>)
A/S weapons:	ASROC launcher amidships, 6—12 inch torpedo tubes on the main deck before the bridge (2 triple)
Machinery:	2 pressurised water cooled C1 W nuclear reactors. Steam turbines. 2 shafts. S.H.P.: 80,000. Trials speed: 30.5 kts.
Radius:	Cruising range, 360,000 miles at 20 kts.
Complement:	Allowance: 60 officers, 925 men. Accommodation for 80 officers, 1,080 men

General

Originally classified as a guided missile light cruiser (CLGN). Provided under the Fiscal 1957 Naval Appropriations. Designed by the U.S. Navy Bureau of Ships. No armour. To have cost \$250,000,000, including \$18,335,305 for the nuclear reactor: but her final cost was \$339,000,000. She was commissioned on 9 Sep. 1961 and joined the Fleet in late 1961. Scheduled for Pacific Fleet in 1966.

Design

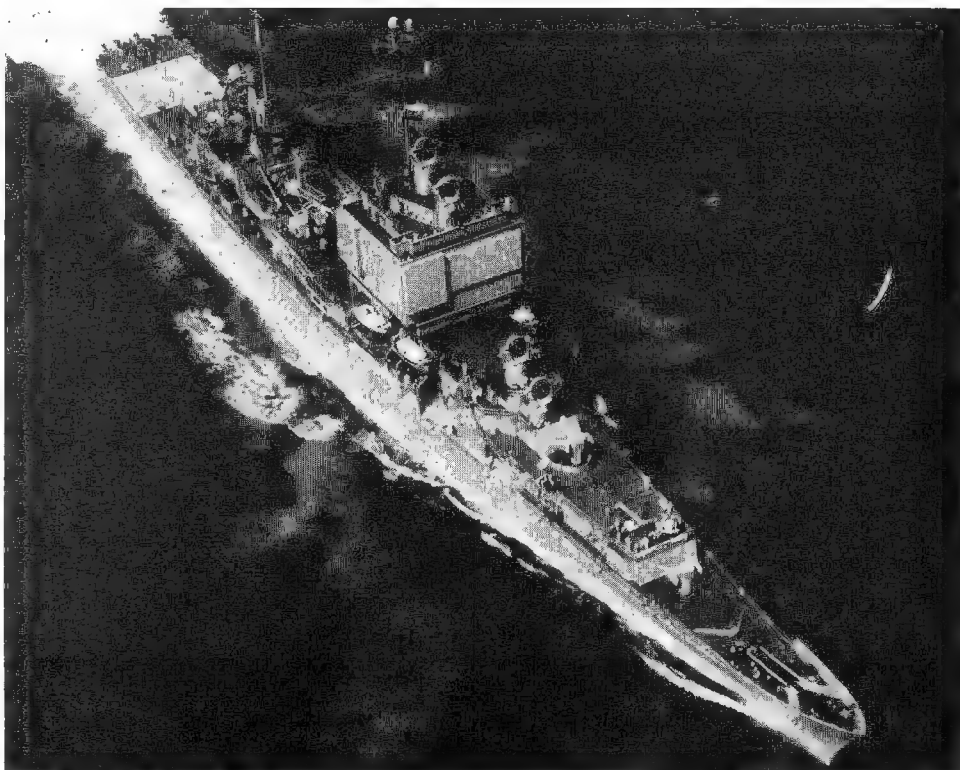
The first ship to be designed and constructed from the keel up as a cruiser for the United States since the end of the Second World War, the first surface ship to be armed with a main armament of guided missiles and powered by a nuclear engineering plant, and the first nuclear powered surface fighting ship in the world.

Guided Missiles

The complex handling and launching system for "Talos" weighs over 350 tons. The system was designed to store, load, train, elevate, and launch the guided missiles, which weigh 3,000 pounds and are 31 feet long, including booster, and 30 inches in diameter.

The launching equipment automatically selects the type of missile the fire control officer chooses and delivers it to the launching station. The control system is so complex that the equipment must not only remember which missile is in which rack but must also remember any changes made in the racks themselves.

The ramjet propelled "Talos" is capable of engaging both supersonic and subsonic targets and is effective against enemy planes employing air-to-surface missiles and the



LONG BEACH

1965, United States Navy, Official

missiles themselves. It can deliver a high explosive or atomic warhead, as circumstances dictate.

The design of the ship included provision for an 8 missile "Polaris" launching system which might be installed at a later date.

Gunnery

In 1963 the ship was fitted with two single 5-inch guns for use against surface targets and slower aircraft.

Electronics

Modern improvements in electronic detection devices

are installed. Fitted with NTDS (Naval Tactical Data System) at Philadelphia in 1962. Equipped with sonar.

Engineering

Westinghouse Electric Corporation constructed the reactor compartment components. General Electric Company constructed the main engines and gears. Capable of steaming continuously at full power for 100,000 miles.

Electrical

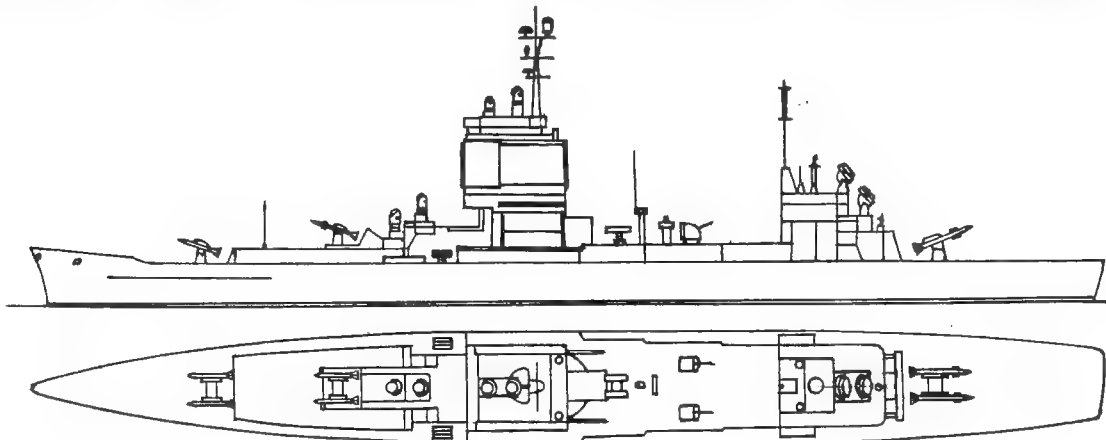
Westinghouse Electric Corporation built the six turbine generator sets, each of which has a rating of 2,500 kilowatts.

Photographs

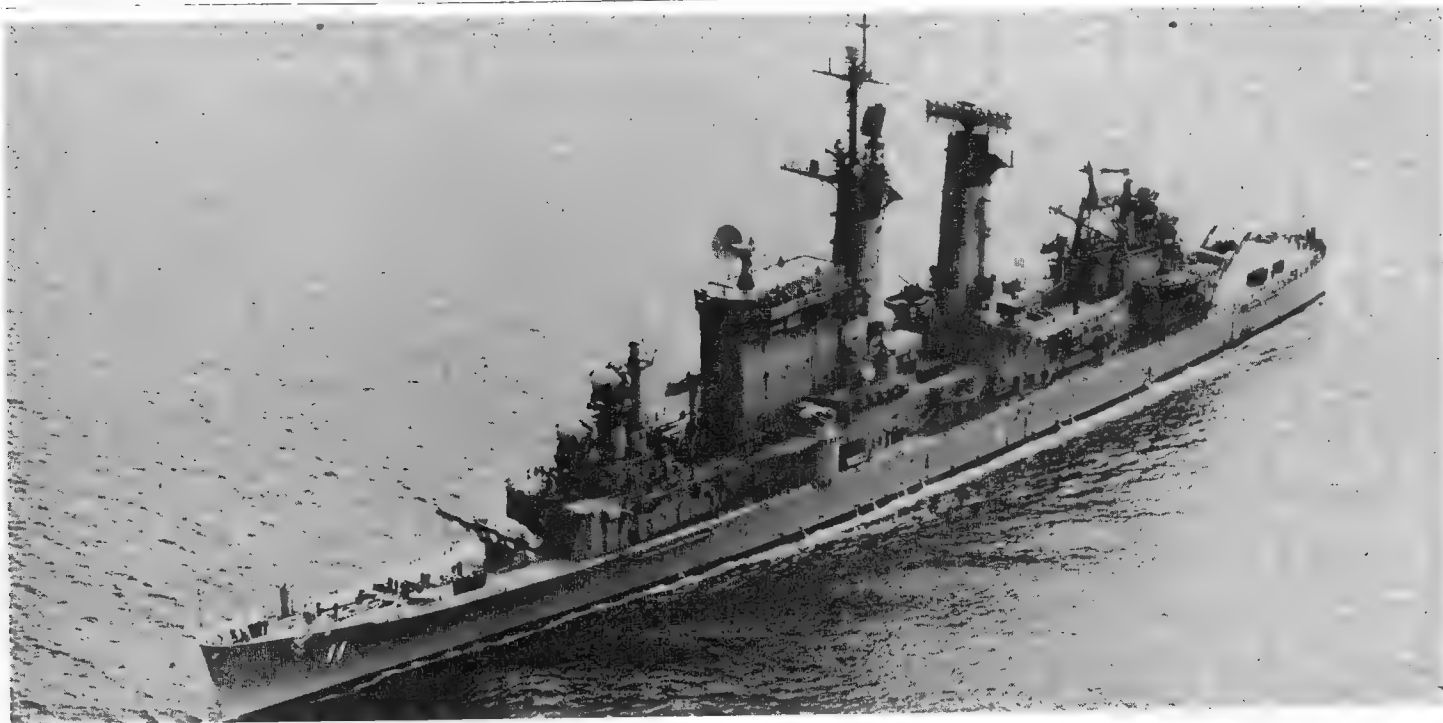
A large oblique aerial view, and a port quarter oblique aerial view, appear in the 1961-62 editions, a starboard dead broadside surface view and a starboard bow surface view in the 1962-63 edition; a starboard broadside aerial view and a port bow aerial view in the 1963-64 edition; and a starboard broadside surface view and a port oblique aerial view in the 1964-65 edition.

Drawing

Port elevation and plan. Redrawn in 1964. Scale 128 feet — 1 inch.

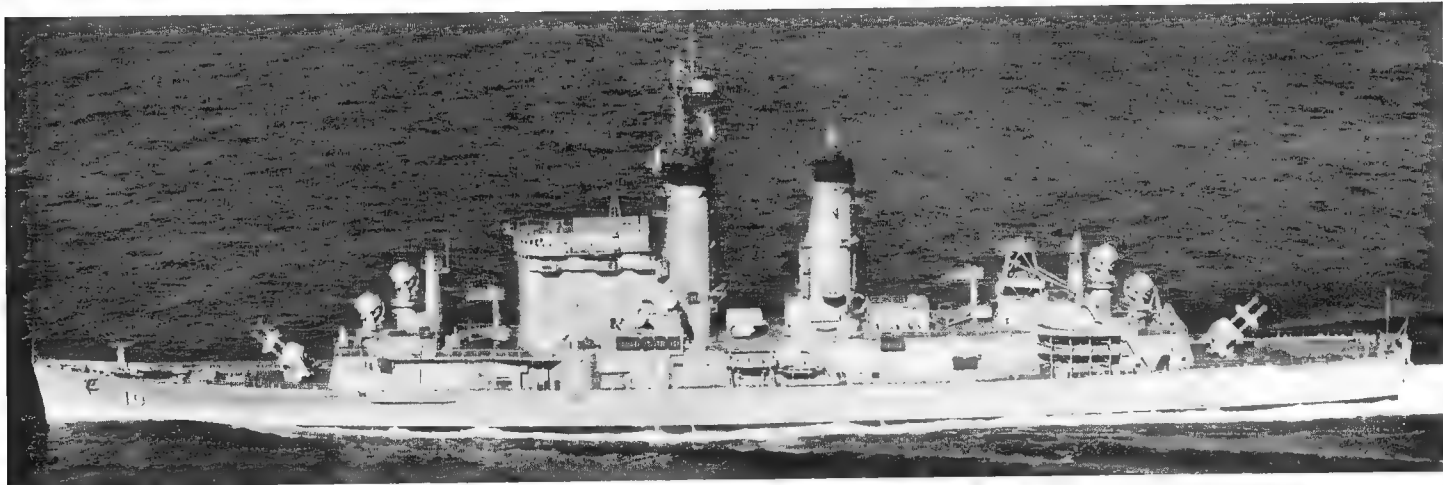


GUIDED MISSILE CRUISERS (CG). Fully Converted from Heavy Cruisers (CA)



CHICAGO

1965, United States Navy, Official



ALBANY

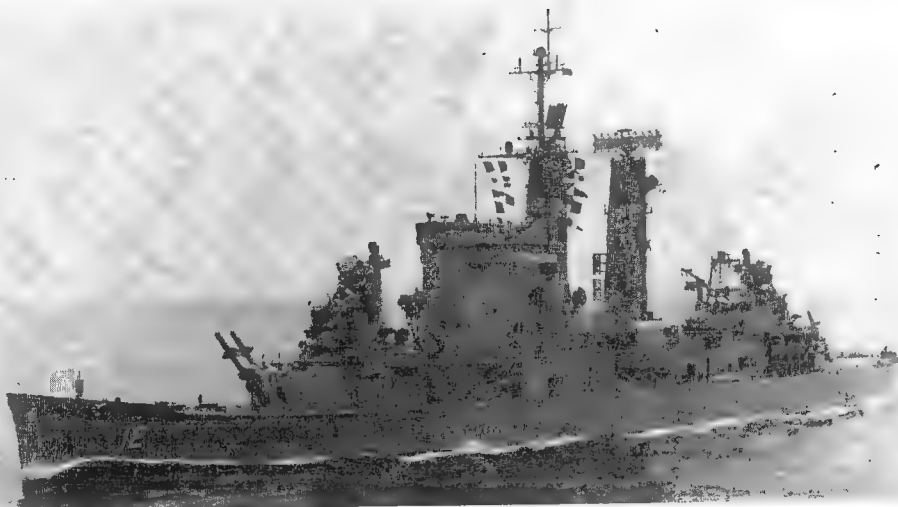
1963, United States Navy, Official

3 Double-Ended and Double-Sided Type

ALBANY	CHICAGO	COLUMBUS
Displacement:	13,700 tons standard (17,500 tons full load)	
Dimensions:	Length: 674 (o.a.) feet. Beam: 71 feet. Draught: 27 feet	
Guided weapons:	2 twin launchers for "Talos" missiles (1 forward, 1 aft); 2 twin launchers for "Tartar" missiles (1 port, 1 starboard)	
Guns:	2—5 inch, 38 cal. in open mounts each side after mack	
A/S weapons:	ASROC octuple rocket launcher; 6 torpedo tubes (2 triple)	
Aircraft:	2 ASW helicopters	
Armour:	6" side belts, 3" decks	
Machinery:	G.E. geared turbines. 4 shafts. S.H.P.: 120,000=34 kts.	
Boilers:	4 Babcock & Wilcox	
Complement:	Allowance: 1,010 (60 officers, 950 men). Accommodation for 85 officers, 1,120 men	

General
Fully converted guided missile armed cruisers. Originally Albany was one of the "Oregon City" class heavy cruisers with one funnel, while Chicago and Columbus were of the "Baltimore" heavy cruisers with two funnels, but as both classes had similar dimensions, armament and propelling machinery and all three ships were rebuilt to the same design they constitute a homogeneous new class of unique type.

Conversion
The ships were stripped down to the main hull, having been redesigned from the third deck up, and building then started afresh to the recast layout. The reconstruction consisted of the entire suppression of the old conception of armament and separate funnels and masts, and the installation of guided weapons both forward and aft and on both beams, thus giving the term "Double-ended and double-sided", with combined mast-stacks or "macks" replacing the former masts and stacks. The first conventionally powered cruisers to have all their guns replaced by guided missile launchers (it was subsequently decided to add two 5 inch guns). They are also fitted with sonar and anti-submarine weapons. The design, included provision for an 8 missile "Polaris" launching system.



COLUMBUS

1964, United States Navy, Official

Albany was converted at Boston Naval Shipyard between 2 Jan. 1959 and 3 Nov. 1962, Columbus at Puget Sound Naval Shipyard 1 June 1959 to 1 Mar. 1963, and Chicago at San Francisco Naval Shipyard 1 July 1959 to 1 Sep. 1964 (recommissioned on 2 May 1964). Albany to be converted to AAW in 1966.

Name	No.	Builders	Laid down	Launched	Completed
Albany	CG 10 (ex-CA 123)	Bethlehem Steel Co., Quincy	6 Mar. 1944	30 June 1945	15 June 1946
Chicago	CG 11 (ex-CA 136)	Philadelphia Naval Shipyard	28 July 1943	20 Aug. 1944	8 June 1945
Columbus	CG 12 (ex-CA 74)	Bethlehem Steel Co., Quincy	28 June 1943	30 Nov. 1944	10 Jan. 1945

GUIDED MISSILE HEAVY CRUISERS (CAG). Converted from Heavy Cruisers (CA)



CANBERRA (new radar aerals, helicopter platform aft)

1963, Giorgio Arra

Single-Ended Type

2 Converted "Baltimore" Class

	BOSTON	CANBERRA (ex-Pittsburgh)
Name:	Boston	Canberra
No.:	CAG 1 (ex-CA 69)	CAG 2 (ex-CA 70)
Builders:	Bethlehem-Steel Co., Quincy	Bethlehem-Steel Co., Quincy
Laid down:	30 June 1941	3 Sep. 1941
Launched:	26 May 1942	19 Apr. 1943
Completed:	30 June 1943	14 Oct. 1943
Converted:	1 Nov. 1955	15 June 1956

Displacement:	13,300 tons standard (17,500 tons full load)
Dimensions:	Length: 673½ (o.a.) feet. Beam: 71 feet. Draught: 26 feet
Guns:	6—8 inch 55 cal.; 10—5 inch 38 cal.; 12—3 inch, 50 cal. AA.
Guided weapons:	2 twin launchers for "Terrier" missiles (aft only)
Armour:	6" side belts, 3" decks
Machinery:	G.E. geared turbines. 4 shafts. S.H.P.: 120,000=34 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	2,500 tons
Complement:	Allowance: 1,273 (73 officers, 1,200 men). Accommodation for 80 officers, 1,400 men

General

The world's first guided missile cruisers and first operational combat ships capable of firing supersonic anti-aircraft guided missiles. Formerly classified as Heavy Cruisers (CA). *Canberra*, just before original completion, was renamed in commemoration of the heavy cruiser *Canberra*, of the Royal Australian Navy, which was sunk in the first Battle of Savo Island on 9 Aug. 1942.

Conversion

Both ships were converted to Guided Missile Heavy Cruisers (CAG) by New York Shipbuilding Corporation, Camden, New Jersey, at a cost of \$30,000,000 for the two. The after 143-ton 8 inch gun turret and the after 5 inch twin gun mounting were removed and two twin guided missile launchers mounted in "X" and "Y" positions in their place. Both ships underwent other drastic changes for their new role of defence against aircraft. The superstructure was entirely remodelled to accommodate the new weapons: One of the original two funnels was removed, radically changing the ships' appearance.

Guided Missiles

A supersonic anti-aircraft weapon, with a length of 27 feet and a speed of 1,500 m.p.h. the "Terrier" was designed to intercept aircraft under any weather conditions at a longer range and higher altitudes than conventional anti-aircraft guns. Stowage of the "Terrier" is below decks in two magazines, completely automatic



CANBERRA

Added 1962, courtesy Godfrey H. Walker, Esq.



BOSTON

1960, courtesy Commander John C. Parry, U.S.N.R.

loading devices. Each of the two twin launchers is capable of firing two "Terriers" simultaneously. Can launch four missiles in eight-tenths of a second. Two missiles per launcher every 30 seconds. Automatic loading. 144 "Terrier" missiles carried in each ship.

Modernisation

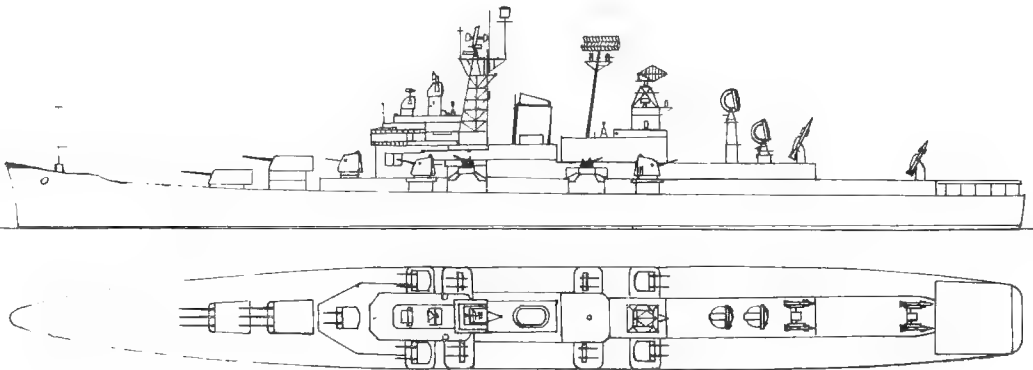
Both ships carry "Terrier" I, with a 10-mile range. *Boston* is to be modernised to handle newer, longer-range versions of "Terriers". It is expected that *Canberra* will receive the same improvements.

Photographs

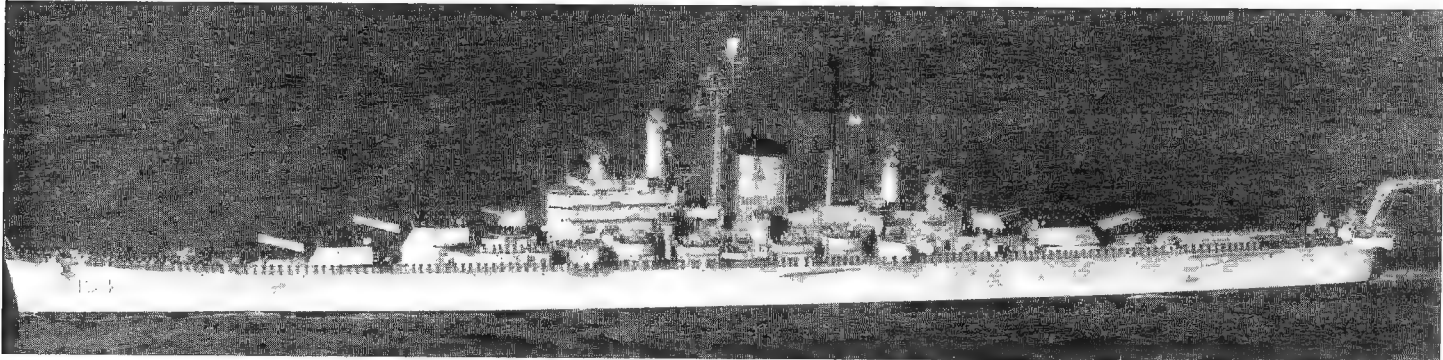
A port quarter oblique aerial view of *Boston* appears in the 1956-57 to 1958-59 editions, a starboard quarter surface view in the 1959-60 edition, a starboard bow oblique aerial view in the 1956-57 to 1961-62 editions, and a port broadside surface view in the 1962-63 edition. A port broadside surface view of *Canberra* appears in the 1958-59 to 1961-62 editions.

Drawing

Port elevation and plan of *Canberra*. Redrawn in 1965. Scale: 128 feet=1 inch.

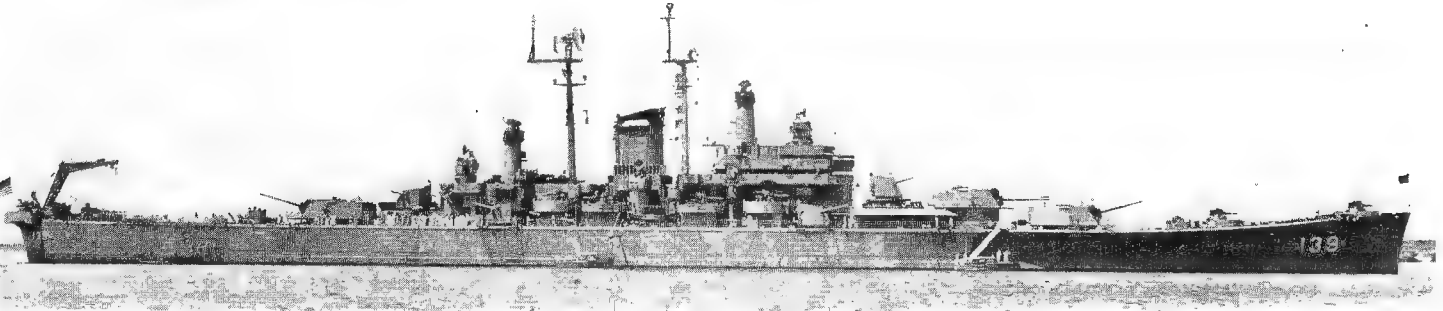


HEAVY CRUISERS (CA)



DES MOINES

1962, United States Navy, Official



SALEM

Added 1961, United States Navy, Official

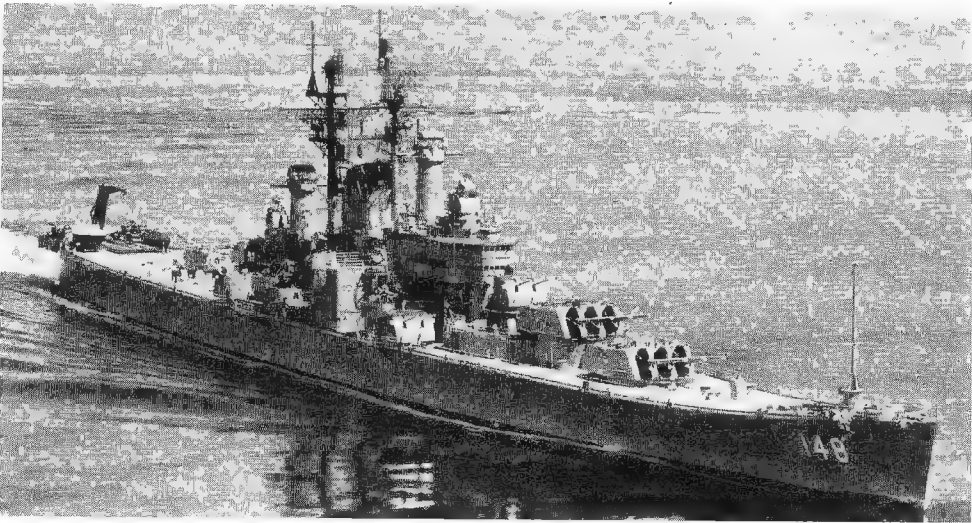
3 "Salem" Class

DES MOINES	NEWPORT NEWS	SALEM
Displacement:	17,000 tons standard (21,500 tons full load)	
Dimensions:	Length: 717 (o.a.) feet. Beam: 75½ feet. Draught: 26 feet	
Guns:	9—8 inch, 55 cal., in 3 triple turrets. 12—5 inch, 38 cal., d.p. in 6 twin mounts, 16—3 inch AA., 50 cal., in 8 twin mounts, (see Gunnery)	
Aircraft:	1 helicopter	
Armour:	8"–6" side, 3"–2" decks	
Machinery:	Geared turbines. 4 shafts. S.H.P.: 120,000=33 kts.	
Boilers:	4 Babcock & Wilcox	
Oil fuel:	2,600 tons	
Radius:	8,000 miles at 15 kts.	
Complement:	Allowance: 1,300 (60 officers, 1,240 men). Accommodation for 103 officers, 1,565 men	

General
The heaviest cruisers in the world, and the first ves- to mount completely automatic rapia-fire 8-inch guns. They were an expansion of the "Oregon City" class design. Much of extra tonnage is absorbed by rapid loading gear and extra magazine space. *Newport News* and *Salem* were the first completely air-conditioned cruisers. *Des Moines* is not air-conditioned. *Salem* de- commissioned Feb. 1959. *Des Moines* decommissioned in Mar. 1961.

Conversion
Newport News underwent limited conversion at Nor- folk Naval Shipyard in 1961-62 at a cost of \$2,000,000 for her role as Second Fleet Flagship in the Atlantic.

Gunnery
All guns are fully automatic. Cartridge cases replaced wrapped charges. Shells have automatic fuse setting. 8-inch guns are capable of firing four times more rapidly than any previous model. There is provision for 24—3 inch AA. guns in 12 twin mountings; but the twin mountings abreast the funnel are not installed in peace- time, and the twin mountings on the forecandle have been removed from *Newport News*.



NEWPORT NEWS

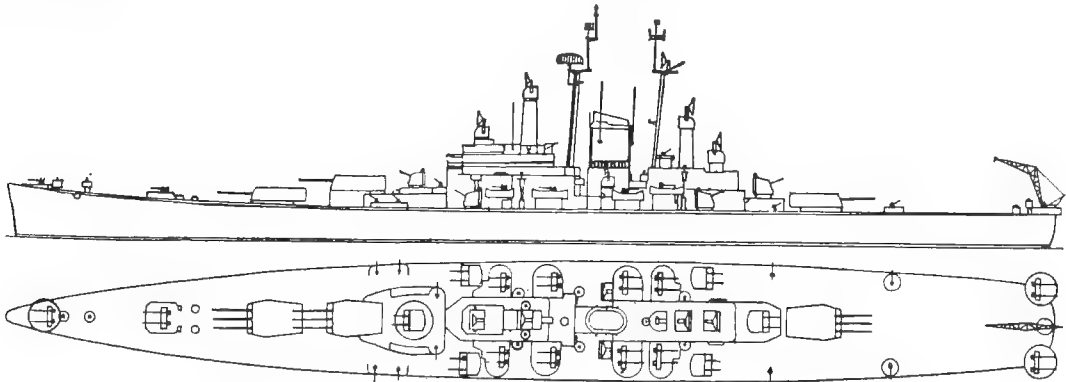
1964, United States Navy, Official

Photographs
Starboard bow view of *Salem* in the 1957-58 edition, broadside section view of *Salem* in the 1959-60 and 1960-61 editions, starboard broadside aerial view of *Newport News* in the 1957-58 to 1960-61 editions, starboard bow oblique aerial view of *Des Moines* in the 1957-58 to 1961-62 editions, and starboard bow oblique aerial view of *Newport News* in the 1961-62 edition.

Appearance
With single funnels, these three ships resemble the "Oregon City" class. After refit as flagship *Newport News* has an antennae mast on the forecandle.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch. The 20 mm. AA. guns shown have since been removed.

No.	Name	Builders and Machinery	Laid down	Launched	Completed
CA 134	<i>Des Moines</i>	Bethlehem Steel Co., Quincy	28 May 1945	27 Sep. 1946	17 Nov. 1948
CA 139	<i>Salem</i>	Bethlehem Steel Co., Quincy	4 June 1945	25 Mar. 1947	9 May 1949
CA 148	<i>Newport News</i>	Newport News S.B. & D.D. Co.	1 Oct. 1945	6 Mar. 1947	29 Jan. 1949





OREGON CITY

Added 1954, U.S. Navy, Official

2 "Oregon City" Class

Name:	OREGON CITY	ROCHESTER
No.:	CA 122	CA 124
Builders:	Bethlehem Steel Co., Quincy	Bethlehem Steel Co., Quincy
Laid down:	8 Apr. 1944	29 May 1944
Launched:	9 Feb. 1945	28 Aug. 1945
Completed:	16 Feb. 1946	20 Dec. 1946
Displacement:	Oregon City: 13,700 tons standard, Rochester: 13,000 tons standard (17,500 tons full load)	
Dimensions:	Length: 673½ (o.a.) feet. Beam: 71 feet. Draught: 26 feet.	
Guns:	Rochester: 9—8 inch in 3 triple turrets; 12—5 inch, 38 cal. in 6 twin mounts; 20—3 inch, 50 cal. AA. in 10 twin mounts. See Gunnery. Oregon City: 9—8 inch, 55 cal., 12—5 inch, 38 cal., 52—40 mm. AA., 24—20 mm. AA.	
Aircraft:	1 helicopter	
Armour:	6" side, 3" + 2" decks	
Machinery:	G.E. geared turbines. 4 shafts. S.H.P. 120,000=33 kts.	
Boilers:	4 Babcock & Wilcox	
Oil fuel:	2,500 tons	
Radius:	9,000 miles at 15 kts.	
Complement:	Allowance: 1,128 (53 officers, 1,075 men). Accommodation for 85 officers, 1,660 men.	

General

The design of these ships is a modification of that of the "Baltimore" class, with a single funnel and simplified superstructure. The bridge is farther aft than in the "Baltimore" class. *Oregon City*, long out of commission, in reserve, retains her original armament. *Rochester* decommissioned in Apr. 1961.

Engineering

Cruising turbines are not included in the machinery design. In the event of port or starboard fuel tanks being ruptured, the change-over of suction to the other side could be accomplished in a minute, oil burner lines being divided at the boiler face.

Gunnery

Rochester was rearmed with 3-inch, 50 cal. anti-aircraft guns in place of her former 40 mm. AA. guns and 20 mm. AA. guns.

Class

Albany, originally of this class, was converted to a guided missile cruiser at Boston Naval Shipyard between 2 Jan. 1959 and 3 Nov. 1962 (see previous page). Her classification and hull number was officially changed from CA 123 to CG 10 on 1 Nov. 1958. She recommissioned on 3 Nov. 1962.

Photographs

A photograph of *Albany* before conversion appears in the 1952-53 to 1957-58 editions.

Drawing

Port elevation and plan of *Oregon City* and *Rochester*. Scale: 128 feet=1 inch.



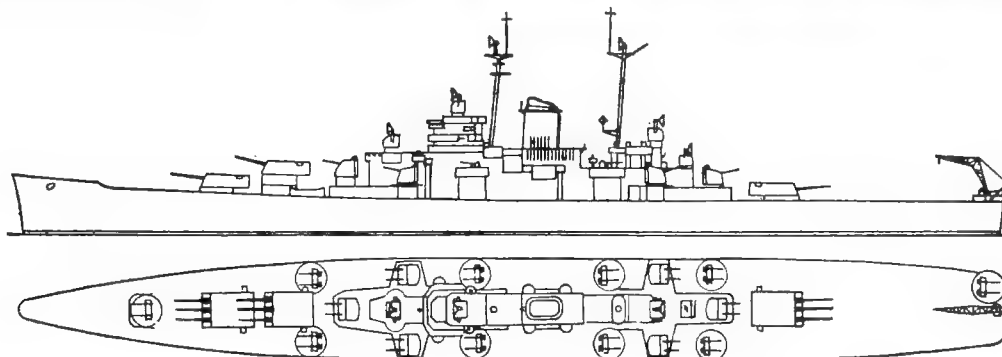
ROCHESTER

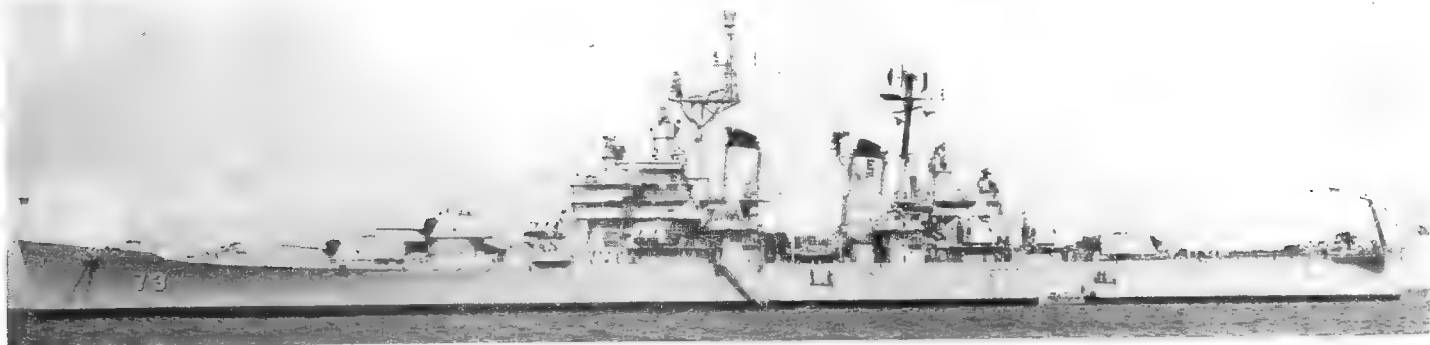
Added 1965, United States Navy, Official



ROCHESTER

Added 1957, U.S. Navy, Official





ST. PAUL

Added 1961, United States Navy, Official

10 "Baltimore" Class

BALTIMORE
BREMERTON
FALL RIVER
HELENA (ex-Des Moines)
LOS ANGELES

MACON
PITTSBURGH (ex-Albany)
QUINCY (ex-St. Paul)
ST. PAUL (ex-Rochester)
TOLEDO

Displacement: 13,600 tons standard (17,200 tons full load)
 Dimensions: Length: 673½ (o.a.) feet. Beam: 71 feet. Draught: 26 feet
 Guns: 9—8 inch, 55 cal., 12—5 inch, 38 cal., 52—40 mm. AA. (14—3 inch 50 cal. guns replaced 40 mm. in rearward ships)
 Aircraft: All ships carry a helicopter
 Armour: 6" side, 3" + 2" decks
 Machinery: G.E. geared turbines, 4 shafts. S.H.P.: 120,000=34 kts.
 Boilers: 4 Babcock & Wilcox
 Oil fuel: 2,500 tons
 Radius: 9,000 miles at 15 kts.
 Complement: Allowance: 1,146 (61 officers, 1,085 men). Accommodation for 78 officers, 1,555 men. Varies among class

General
 Pittsburgh was built in 20 months. All the others except Toledo were built in two years. The last six of the original 14 ships of the class were built under the War Programme. Only one crane now at stern except in Baltimore and Quincy which have two cranes on the stern as shown in the photograph of Baltimore in the 1958-59 edition. Catapults were discarded. The classification and hull number of Fall River (CA 131 to CG 12) was officially changed to become effective on 1 Nov. 1958, but the re-classification was cancelled on 9 Oct. 1958 (Columbus was converted instead). St. Paul (First Fleet Flagship) and Helena now have a tower foremast and improved radar, see photographs. St. Paul is the only ship of the class still active.

Gunnery
 The 8-inch guns were of a new model, firing a heavier shell than those mounted in previous cruisers. Bremerton, Helena, Los Angeles, Macon, St. Paul and Toledo underwent armament conversion (improved rapid-firing twin 3 inch 50 cal. AA guns replacing 40 mm. AA. guns).

Guided Missiles
 Boston and Canberra, originally of this class, were partially converted to guided missile ships (CAG) in 1955-56, see previous page. (Fitted with surface-to-air "Terrier" missile installations aft). Los Angeles was converted to carry "Regulus" guided missiles at Mare Island Naval Shipyard during a three-month refit in 1954 with little change in previous armament. Helena, Macon and Toledo were also fitted for carrying "Regulus" guided missiles. These four ships were not classified as guided missile cruisers, however.

Conversion
 Two ships of this class were converted to guided missile cruisers under the Fiscal 1959 programme. Chicago at San Francisco Naval Shipyard and Columbus at Puget Sound Naval Shipyard (see previous page). They have a combination of "Talos" and "Tartar" surface-to-air missile system with "Talos" mounted on twin launchers fore and aft and "Tartar" launchers installed amidships. All superstructure and gun mountings were removed, and they were rebuilt to provide for ASW weapons in addition to missiles, including ASROC and sonar.

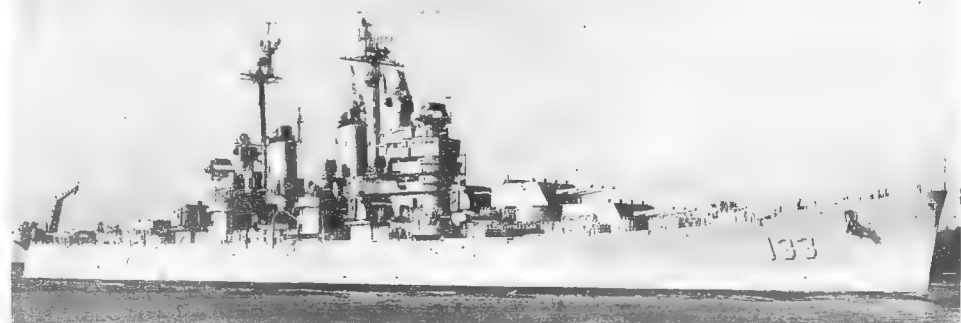
Drawing
 Port elevation and plan of "Baltimore" class not converted. Scale: 128 feet=1 inch

Disposals
 The heavy cruisers Augusta, CA 31, Chester, CA 27 and Louisville, CA 28, of the "Chester" class; the Portland, CA 33; the New Orleans, CA 32, Minneapolis, CA 36, Tuscaloosa, CA 37 and San Francisco, CA 38, of the "New Orleans" class; and the Wichita, CA 45, were scrapped in 1959 (stricken from the Navy List on 1 Mar. 1959).



HELENA

1961, United States Navy, Official



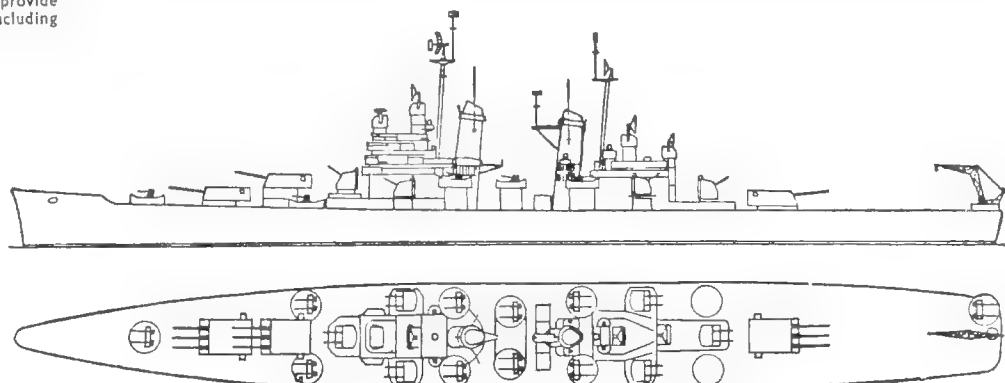
TOLEDO

Added 1963, United States Navy, Official

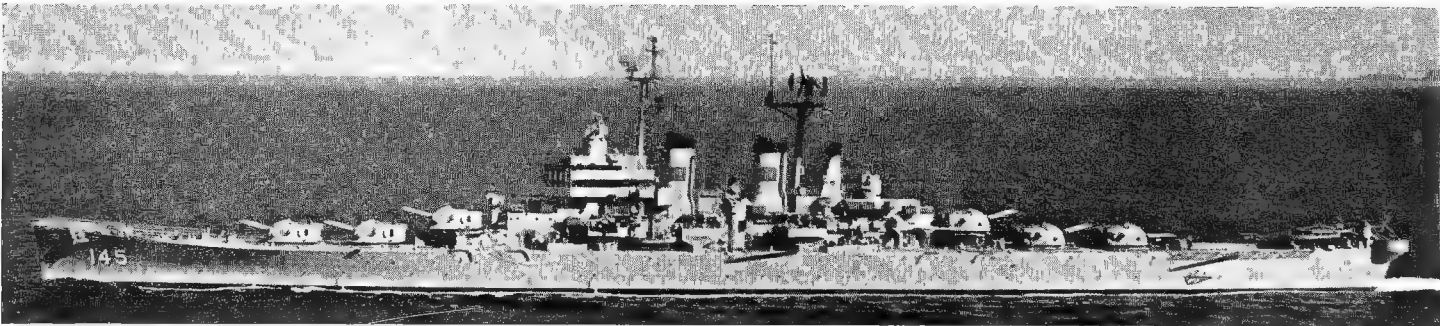
No.	Name	Builders	Laid down	Launched	Completed
CA 68	Baltimore	Bethlehem Steel Company, Quincy	26 May 1941	28 July 1942	15 Apr. 1943
CA 71	Quincy	Bethlehem Steel Company, Quincy	9 Oct. 1941	23 June 1943	15 Dec. 1943
CA 72	Pittsburgh	Bethlehem Steel Company, Quincy	3 Feb. 1943	22 Feb. 1944	10 Oct. 1944
CA 73	St. Paul	Bethlehem Steel Company, Quincy	3 Feb. 1943	16 Sep. 1944	17 Feb. 1945
CA 75	Helena	Bethlehem Steel Company, Quincy	9 Sep. 1943	28 Apr. 1945	4 Sep. 1945
CA 130	Bremerton	New YorkShipbuilding Corporation	1 Feb. 1943	2 July 1944	29 Apr. 1945
CA 131	Fall River	New YorkShipbuilding Corporation	12 Apr. 1943	13 Aug. 1944	1 July 1945
CA 132	Macon	New YorkShipbuilding Corporation	14 June 1943	15 Oct. 1944	26 Aug. 1945
CA 133	Toledo	New YorkShipbuilding Corporation	13 Sep. 1943	6 May 1945	27 Oct. 1946
CA 135	Los Angeles	Philadelphia Naval Shipyard	28 July 1943	20 Aug. 1944	22 July 1945

Photographs

A photograph of a "Regulus" guided missile being launched from Helena, and a port broadside view of Macon appear in the 1957-58 edition, a port quarter view of St. Paul in the 1959-60 view of Baltimore in the 1954-55 to 1958-59 editions, and a larger starboard broadside view of Los Angeles in the 1958-59 to 1960-61 editions, a port bow oblique elevated view of Helena in the 1957-58 to 1960-61 editions, and a port quarter view of St. Paul in the 1959-60 and 1960-61 editions.



LIGHT CRUISERS (CL)

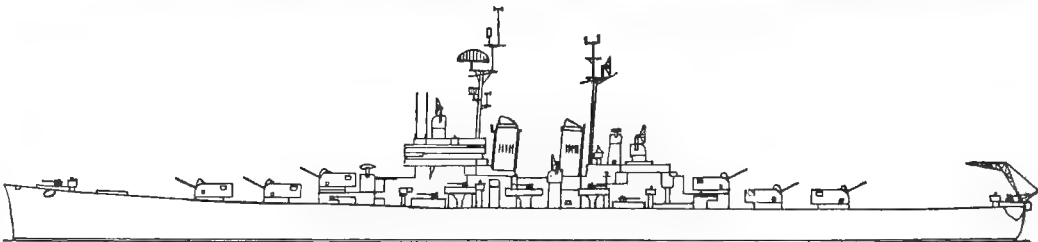


ROANOKE

1958, U.S. Navy Official

2 "Worcester" Class

Name:	ROANOKE	WORCESTER
No.:	CL 145	CL 144
Builders:	New York Shipbuilding Corporation	New York Shipbuilding Corporation
Laid down:	15 May 1945	29 Jan. 1945
Launched:	16 June 1947	4 Feb. 1947
Completed:	4 Apr. 1948	25 June 1948



Displacement: 14,700 tons standard (18,500 tons full load)
Dimensions: Length: 668 (w.l.), 679½ (o.a.) feet. Beam: 70½ feet. Draught: 25 feet.
Guns: 12—6 inch, 47 cal., d.p., 24—3 inch, 50 cal., d.p. (Worcester 18—3 inch)

Aircraft: 1 helicopter
Armour: 6"—3" side, 4" turrets, 3"+2" decks
Machinery: G.E. geared turbines. 4 shafts. S.H.P.: 120,000—32 kts. 4 Babcock & Wilcox 3,300 tons
Boilers: 12,000 miles at 15 kts.
Oil fuel:
Radius: Allowance: 995 (55 officers, 940 men). Accommodation for 70 officers, 1,286 men
Complement:

General
Both ordered on 15 June 1943. Transferred from the Atlantic Fleet to the Pacific Fleet in 1955-56. These ships, which are larger than most heavy cruisers, were nevertheless rated as light cruisers by Treaty definitions. Both decommissioned in 1958-59 at San Francisco.
Gunnery
The 6 inch dual purpose guns of a semi-automatic model were mounted in six twin turrets. The 3 inch rapid fire guns were disposed in eleven twin mounts and two single mounts.

Class
Two incomplete sister ships, *Vallejo* (146) and *Gary* (147) were cancelled on 11 Aug. 1945. Six additional ships, CL 154-159, were cancelled in 1945.
Photographs
A starboard quarter view of *Worcester* appears in the 1957-58 edition, a port bow oblique aerial view in the 1959-60 edition, and a starboard broadside view in the 1957-58 to 1962-63 editions.
Drawing
Port elevation and plan. Scale: 128 feet=1 inch.



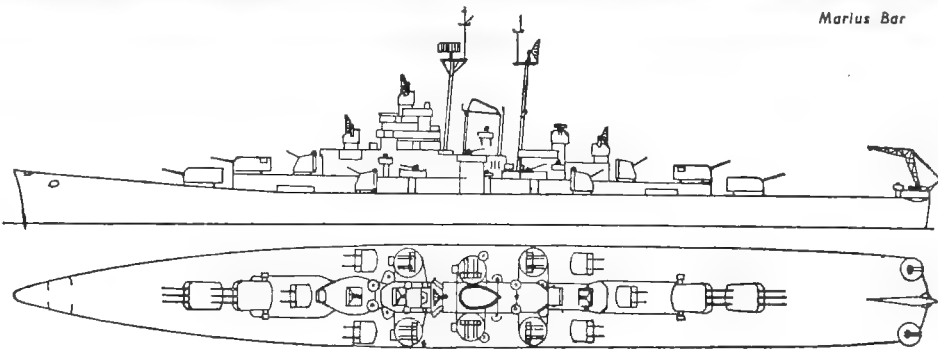
FARGO

Marius Bar

1 "Fargo" Class

FARGO	
No.:	CL 106
Builders:	New York Shipbuilding Corpn.
Laid down:	23 Aug. 1943
Launched:	25 Feb. 1945
Completed:	9 Dec. 1945

Displacement: 10,500 tons standard (14,055 tons full load)
Dimensions: Length: 600 (w.l.), 610 (o.a.) feet. Beam: 66 feet. Draught: 25 feet
Guns: 12—6 inch, 47 cal., 12—5 inch, 38 cal., d.p., 24—40 mm. AA., 19—20 mm. AA.
Aircraft: 3 seaplanes (originally carried)
Catapults: 2
Armour: 5"—1½" side, 5"—3" gunhouses, 3"+2" decks
Machinery: G.E. geared turbines. 4 shafts. S.H.P.: 100,000—32.5 kts. 4 Babcock & Wilcox 2,500 tons
Boilers: 9,500 miles at 15 kts.
Oil fuel:
Radius: Allowance: 925 (55 officers, 870 men). Accommodation for 70 officers, 1,286 men
Complement:

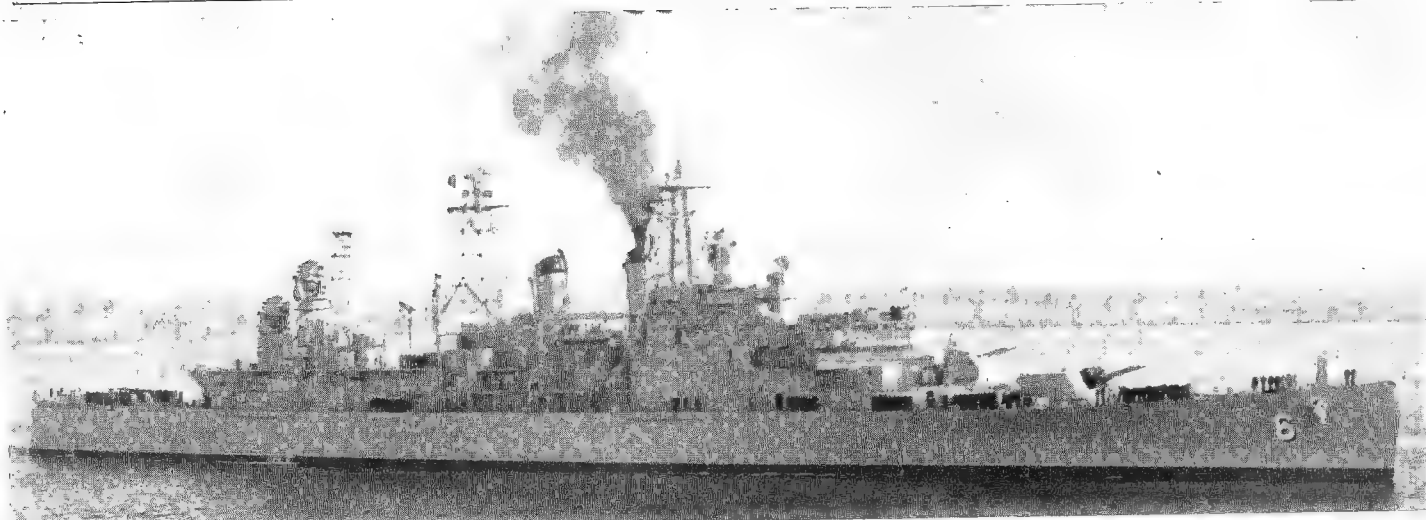


General
A modified version of the "Cleveland" type with single funnel and simplified superstructure to enlarge the area of fire of the anti-aircraft armament. Out of commission, in the Atlantic Reserve Fleet.
Disposal
Sister ship *Huntington* was stricken from the Navy List on 1 Sep. 1961.

Drawing
Port elevation and plan. Scale: 128 feet=1 inch.

Photographs
A large starboard bow oblique aerial view of *Fargo* appears in the 1958-59 and earlier editions, and starboard broadside aerial and starboard bow aerial views of *Huntington* in the 1959-60 edition.

GUIDED MISSILE LIGHT CRUISERS (CLG). Conversion from Light Cruisers (CL)



PROVIDENCE

1960, United States Navy, Official

Single-Ended Type 6 Converted "Cleveland" Class

GALVESTON
LITTLE ROCK
OKLAHOMA CITY

PROVIDENCE
SPRINGFIELD
TOPEKA

Displacement:	10,670 tons standard (14,600 tons full load)
Dimensions:	Length: 600 (w.l.), 610 (o.a.) feet. Beam: 66 feet. Draught: 25 feet.
Guns:	Galveston, Topeka: 6—6 inch, 47 cal. (2 triple); 6—5 inch, 38 cal. d.p. (3 twin) Little Rock, Oklahoma City, Providence, Springfield: 3—6 inch, 47 cal. (triple); 2—5 inch, 38 cal. d.p. (twin)
Guided weapons:	Galveston, Little Rock, Oklahoma City: 1 "Talos" twin launcher aft, with 46 missiles. Providence, Springfield, Topeka: 1 "Terrier" twin launcher aft with 120 missiles.
Armour:	5" belt, 5" decks, 5"—3" gun-houses
Machinery:	G.E. geared turbines. 4 shafts. S.H.P.: 100,000=33 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	2,100 tons
Radius:	7,500 miles at 15 kts.
Complement:	"Galveston" class. Allowance: 1,077 (67 officers, 1,010 men). Accommodation for 125 officers, 1,270 men. "Providence" class. Allowance: 1,012 (67 officers, 945 men). Accommodation for 70 officers, 2,000 men. Varies among class

General

These six former light cruisers of the "Cleveland" class (CL) were converted into guided missile light cruisers (CLG), Galveston under the 1956 Fiscal Year Programme and the other five under the 1957 Fiscal Year Programme. They have conventional armament forward, and amidships, and guided missile launchers aft, three being armed with "Terrier" missiles and three with "Talos" missiles. Other work, including improvement of habitability, was also done in conjunction with the installation of missile capabilities.

Flagships

Little Rock, Oklahoma City, Providence and Springfield were refitted as flagships, the navigating bridge and forward superstructure being reconstructed to provide for flag spaces. Springfield became 6th Fleet flagship on 14 Dec. 1960. Oklahoma City became 7th Fleet flagship on 1 July 1964, replacing Providence as such. Little Rock became 2nd Fleet flagship in Oct. 1961.

Construction

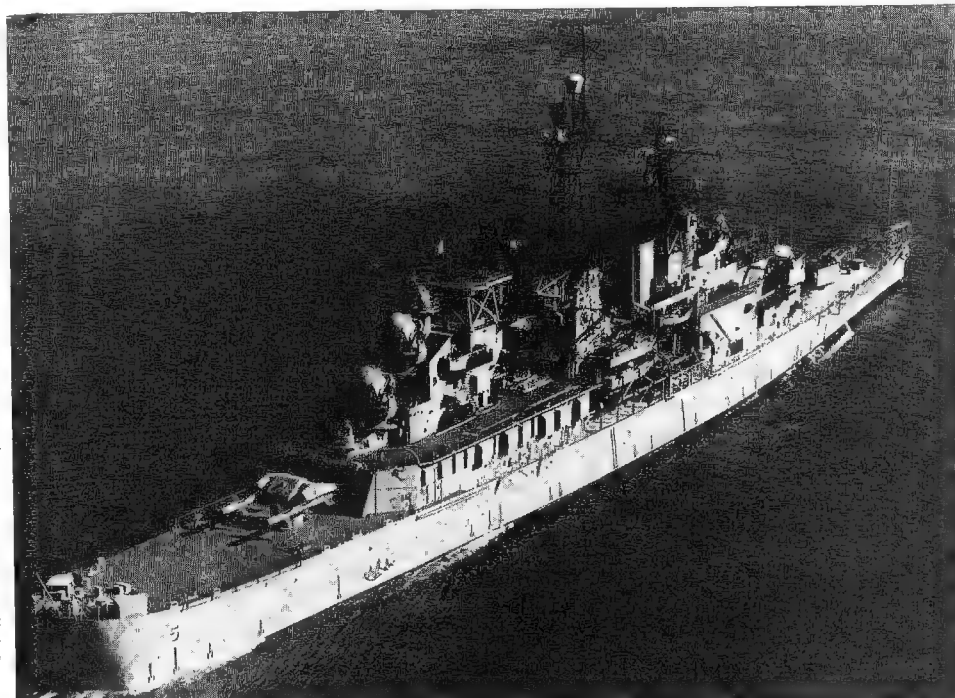
For builders and dates of laying down, launch, and original completion, see table on next page under "Cleveland" class.

Guided Missiles

The Bendix "Talos" ramjet-powered surface-to-air missile, the principal armament in the Galveston, has a range of more than 65 miles and is able to carry a nuclear warhead. See full notes under Long Beach on a previous page.

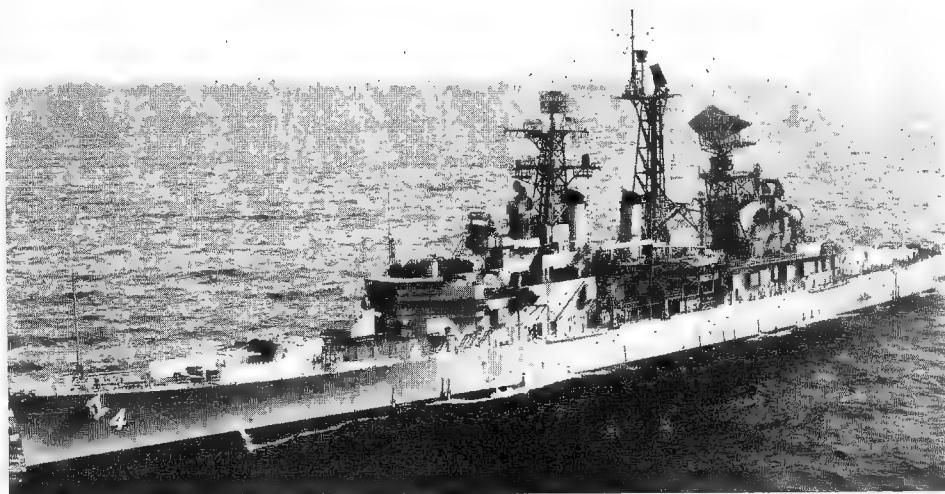
Conversion

Galveston was converted at Philadelphia Naval Shipyard. She was reclassified CLG 93 on 4 Feb. 1956, and CLG 3 on 23 May 1957. Conversion began on 15 Aug. 1956 and was completed on 5 Sep. 1958. Topeka was converted at New York Naval Shipyard; Oklahoma City at Bethlehem Pacific Coast Steel Corp., San Francisco, Calif.; Little Rock at New York Shipbuilding Corp., Camden, N.J.; and Providence at Boston Naval Shipyard. Providence began conversion on 1 June 1957, and completed on 30 Sep 1959. Topeka began conversion



OKLAHOMA CITY

1965, United States Navy, Official



LITTLE ROCK (now has new range and height finding radar)

1964, United States Navy, Official

on 19 Aug. 1957 and completed on 26 Mar. 1960. Little Rock began conversion on 30 Jan. 1957 and commissioned on 3 June 1960. Oklahoma City began conversion on 21 May 1957 and commissioned on 7 Sep. 1960. Springfield began conversion on 1 Aug. 1957 at Bethlehem Steel Co., Quincy, Mass. but was moved to Boston Naval Shipyard on 22 Mar. 1960 for completion on 2 July 1960.

Photographs

Port broadside and starboard bow views of Galveston and a starboard bow view of Providence (Addenda) appear in the 1959-60 edition, a port broadside aerial view of Little Rock in the 1960-61 to 1963-64 editions, a starboard quarter aerial view of Galveston in the 1959-60 to 1964-65 editions, and a port oblique surface view of Oklahoma City in the 1961-62 to 1964-65 editions.



SPRINGFIELD (see previous page)

1961, United States Navy, Official

Light Cruisers (CL)

6 (+1) "Cleveland" Class

AMSTERDAM ATLANTA, IX-304 ASTORIA (ex-Wilkes-Barre)	PASADENA PORTSMOUTH VINCENNES (ex-Flint) WILKES BARRE
Displacement:	10,500 tons standard (13,755 tons full load)
Dimensions:	Length: 600 (w.l.), 610 (o.a.) feet. Beam: 66 feet. Draught: 25 feet.
Guns:	12—6 inch, 47 cal., 12—5 inch, 38 cal. (d.p.), 24 to 28—40 mm. AA., 19—20 mm. AA.
Armour:	5"—1½" side, 3"—2" decks, 5"—3" gunhouses.
Machinery:	G.E. geared turbines. 4 shafts. S.H.P.: 100,000=33 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	2,100 tons
Range:	7,500 miles at 15 kts.
Complement:	Allowance: 924 (54 officers, 870 men). Accommodation for 70 officers, 1,285 men

General
With 36 units (excluding Youngstown, CL 94, cancelled on 11 Aug. 1945 when 55 per cent complete), this was numerically the largest group of cruisers of a single design ever put in hand. 27 were completed as cruisers, but nine originally ordered from New York Shipbuilding Corporation were converted into aircraft carriers of the "Independence" class. All the survivors of the "Cleveland" class (which originally carried 3 aircraft launched from two catapults) are out of commission except those converted into guided missile cruisers. (See names of stricken ships of this class under Disposals below.)

Appearance

The first seven ships (CL 55, 56, 57, 58, 60, 62, 63) had round bridge fronts. The remaining six cruisers of this class have a rectangular pilot house with a walk around the front.

Class

Galveston, Little Rock, Oklahoma City, Providence, Springfield and Topeka of this class were converted into guided missile light cruisers (see previous page).

Photographs

A starboard aerial view of Birmingham, a port bow view of Oklahoma City and four photographs of "Terrier" guided missiles appear in the 1957-58 edition, a port bow view of Manchester in the 1958-59 and earlier editions, a photograph of a "Talos" missile on its launcher in the Addenda of the 1958-59 edition, and a larger port broadside view of Manchester in the 1959-60 and 1960-61 editions.

Reclassification

CLG 93 and CLs 92, 91, 82, 66 and 67 were reclassified as CLGs 3, 4, 5, 6, 7 and 8, respectively on 23 May 1957. (See table below).

Conversion

In addition to those marked CLG it was originally intended that Vincennes (CL 64), Astoria (CL 90), Amsterdam (CL 101) and Atlanta (CL 104) would eventually be converted to guided missile cruisers (CLG). Action was postponed on the conversion of a guided missile cruiser under the 1960 conversion programme, and it is now doubtful whether any other guided missile conversions will be undertaken in view of the problems involved.

Drawing

Port elevation and plan of original "Cleveland" class. Scale: 128 feet=1 inch.

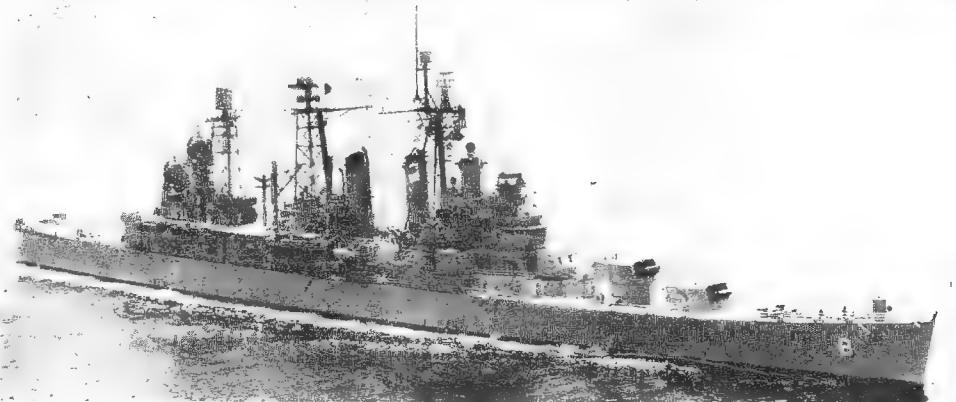
Disposals

Birmingham, CL 62, Cleveland, CL 55, Columbia, CL 56, Denver, CL 58, Houston, CL 81, Mobile, CL 63, Montpelier, CL 57 and Santa Fe, CL 60, of the "Cleveland" class, were scrapped in 1959 (stricken from the Navy List on 1 Mar. 1959). Duluth, CL 87, was stricken on 1 Jan. 1960 and Manchester, CL 83, at the end of 1960. Biloxi, CL 80, Dayton, CL 105, and Miami, CL 89, were stricken on 1 Sep. 1961. Atlanta, CL 104, and Vicksburg, CL 86, were stricken on 1 Oct. 1962, but Atlanta was reinstated as IX-304 on 15 May 1964 to be used in support of Pacific experiments, see photograph on next page.



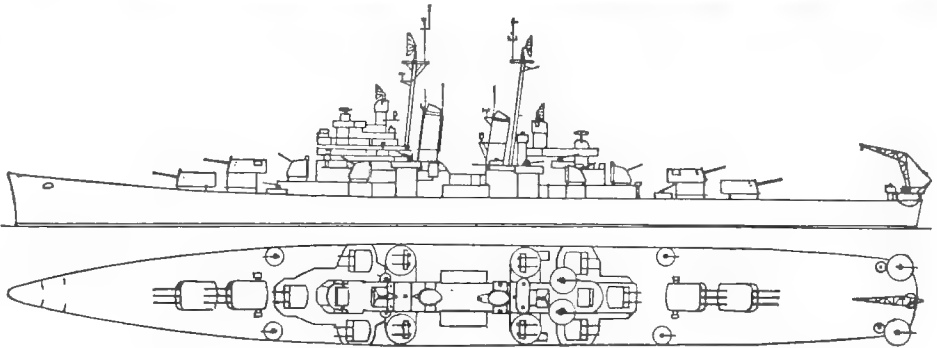
GALVESTON (see previous page)

1965, United States Navy, Official



TOPEKA (see previous page)

1961, United States Navy, Official



No.	Name	Builders	Laid down	Launched	Completed
CL 103	Wilkes-Barre	New York S.B. Corpn.	14 Dec. 1942	24 Dec. 1943	1 July 1944
IX-304 (ex-CL 304)	Atlanta		25 Jan. 1943	6 Feb. 1944	3 Dec. 1944
CL 64	Vincennes		7 Mar. 1942	17 July 1943	21 Jan. 1944
CL 65	Pasadena		6 Feb. 1943	28 Dec. 1943	8 June 1944
CLG 7 (ex-CL 66)	Springfield	Bethlehem Co., Quincy	13 Feb. 1943	9 Mar. 1944	8 Sep. 1944
CLG 8 (ex-CL 67)	Topeka		21 Apr. 1943	19 Aug. 1944	23 Dec. 1944
CLG 6 (ex-CL 82)	Providence		27 July 1943	28 Dec. 1944	15 May 1945
CL 90	Astoria		6 Sep. 1941	6 Mar. 1943	17 May 1944
CLG 5 (ex-CL 91)	Oklahoma City	Cramp S.B. Co.	8 Mar. 1942	20 Feb. 1944	22 Dec. 1944
CLG 4 (ex-CL 92)	Little Rock		6 Mar. 1943	27 Aug. 1944	17 June 1945
CLG 3 (ex-CL 93)	Galveston		20 Feb. 1944	22 Apr. 1945	25 May 1946
CL 101	Amsterdam	Newport News Co.	3 Mar. 1943	25 Apr. 1944	8 Jan. 1945
CL 102	Portsmouth		28 June 1943	20 Sep. 1944	25 June 1945



ATLANTA (see previous page)

1965, United States Navy, Official



PORTSMOUTH (see previous page)

United States Navy, Official

ANTI-AIRCRAFT LIGHT CRUISERS (CLAA)



SPOKANE

Added 1965, United States Navy, Official

4 "Juneau" Class

FLINT (ex-Spokane)	SPOKANE
FRESNO	TUCSON
Displacement:	6,000 tons standard (8,200 tons full load)
Dimensions:	Length: 541 feet. Beam: 53 feet. Draught: 25 feet
Guns:	12—5 inch, 38 cal. (d.p.), 24 to 32—40 mm. AA.
Armour:	3½" side, 2" deck
Machinery:	Westinghouse geared turbines. 2 shafts. S.H.P.: 75,000—32 kts.
Boilers:	4 Babcock & Wilcox
O-I fuel:	1,450 tons
Radius:	7,500 miles at 15 kts.
Complement:	579 (Accommodation for 63 officers, 785 men)

General
Originally rated as light cruisers (CL), later as anti-aircraft cruisers (CLAA). The bridges are armoured. All this class are out of commission.

Second World War losses: *Atlanta* and *Juneau*. (Two new ships of these names were built, of which the former belonged to the larger "Cleveland" class.)

Gunnery
In *Spokane* and *Fresno* (see drawings in the 1964-65 and earlier editions), "B" and "X" turrets were placed a deck lower than in earlier ships and the torpedo tubes were omitted to improve stability.

Torpedo Tubes
The 8—21 inch torpedo tubes in quadruple deck mountings were removed from *Flint* and *Tucson*.

Disposals
Of this class, *San Diego*, CLAA 53, *San Juan*, CLAA 54, *Oakland*, CLAA 95 and *Reno*, CLAA 96, were stricken on 1 Mar. 1959 and *Juneau* on 1 Nov. 1959. *Fresno*, CLAA 121, will be disposed of in 1965.

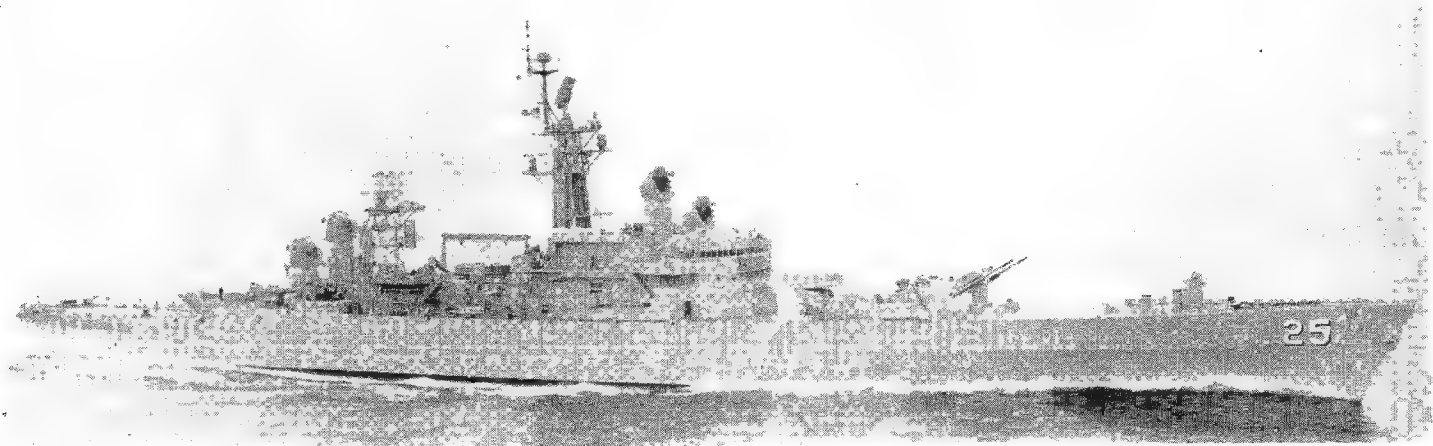


FRESNO

Added 1957, United States Navy, Official

No.	Name	Builders	Laid down	Launched	Completed
CLAA 97	Flint	Bethlehem Steel Co., S. Francisco	23 Oct. 1942	25 Jan. 1944	31 Aug. 1944
CLAA 98	Tucson	Bethlehem Steel Co., S. Francisco	23 Dec. 1942	3 Sep. 1944	3 Feb. 1945
CLAA 120	Spokane	Federal S.B. & D.D. Co., Kearny	15 Nov. 1944	22 Sep. 1945	17 May 1946
CLAA 121	Fresno	Federal S.B. & D.D. Co., Kearny	12 Feb. 1945	5 Mar. 1946	27 Nov. 1946

NUCLEAR POWERED GUIDED MISSILE ARMED DESTROYER LEADERS DLGN

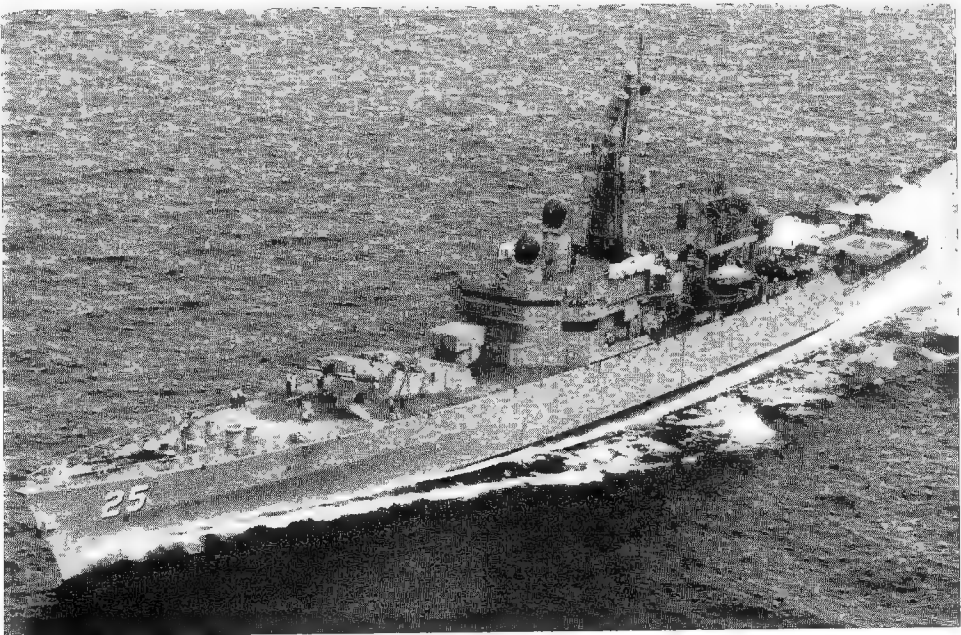


BAINBRIDGE. World's first nuclear powered guided missile frigate, on initial trials 1962, United States Navy, Official

Officially rated as Nuclear Powered Guided Missile Frigate (DLGN)

BAINBRIDGE

No.:	DLGN 25
Builders:	Bethlehem Steel Co., Quincy, Massachusetts
Laid down:	15 May 1959
Launched:	15 Apr. 1961
Commissioned:	6 Oct. 1962
Completed:	Nov. 1962
Displacement:	7,600 tons standard (8,430 tons full load)
Dimensions:	Length: 540 (pp.), 550 (w.l.), 564 (o.a.) feet. Beam: 56 (w.l.), 57½ (max.) feet. Draught: 26 feet
Guided weapons:	2 twin launchers for Advanced "Terrier" surface-to-air missiles mounted fore and aft
Guns:	4—3 inch 50 cal. AA. (2 twin) amidships
A/S weapons:	ASROC launcher forward; 6 torpedo tubes (2 triple)
Machinery:	2 pressurised water cooled DIG nuclear reactors. Geared turbines. 2 shafts. S.H.P.: Over 60,000 = over 30 kts.
Radius:	See Engineering
Complement:	Allowance: 451 (26 officers, 425 men). Accommodation for 34 officers, 465 men



BAINBRIDGE 1963, United States Navy, Official

General
Requested in the Fiscal Year 1959 new construction programme. First nuclear powered warship of the destroyer type ever built in the world. \$35,000,000 appropriated for the nuclear power plant and \$10,000,000 for early work on design and hull. Total cost \$150,000,000. (\$87,000,000 was paid to the builders, Bethlehem Steel. The remainder was for Government furnished material.) The design light displacement was 6,500 tons. She was delivered to the Navy in Nov. 1962. In addition to her guided missiles she carries anti-submarine weapons and conventional armament. She mounts all the weapons and equipment of the conventionally powered guided missile frigates in a slightly bigger hull. She is bigger than the light cruisers of the "Juneau" class. Scheduled for the Pacific Fleet in Oct. 1965.

Engineering
The nuclear power plant was built by the General Electric Co., West Milton, N.Y. The ship has a much greater cruising range at sustained high speeds than conventionally powered frigates. She is capable of steaming 150,000 miles at full power continuously, or more than 400,000 miles at 20 kts. continuously.

The use of nuclear propulsion gives her many advantages. Some of these are the tactical flexibility of steaming at high speeds for long periods of time without the necessity for refuelling and the elimination of smoke stacks and air intakes for blowers (fans), providing

greater protection for personnel against the danger of atomic fall-out. Also the elimination of smoke stacks permits the use of better radar and communication antennae located for optimum performance and free from the deteriorating effects of stack fumes.

Guided Missiles
The ship carries, or has a capacity of, 80 guided missiles.

Nomenclature
Named after Commodore William Bainbridge, hero of the Tripoli War and the War of 1812.

Officially Rated as Nuclear Powered Guided Missile Frigate (DLGN)
I New Construction

TRUXTON

No.:	DLGN 35
Builders:	New York Shipbuilding Corpn., Camden, New Jersey
Laid down:	17 June 1963
Launched:	19 Dec. 1964
Completion:	Jan. 1966 (estimated)

Displacement:	9,000 tons (full load)
Dimensions:	Length: 564 feet. Beam: 58 feet. Draught: 20 feet
Guided weapons:	1 twin launcher for "Terrier" surface-to-air missiles
Guns:	1—5 inch, 54 cal. forward 4—3 inch, 50 cal. (2 twin)
A/S weapons:	Combined "Terrier" ASROC launcher aft, torpedo tubes, DASH
Machinery:	2 nuclear reactors. Geared turbines. 2 shafts
Complement:	27 officers, 452 men. Accommodation for 31 officers, 465 men

General
This ship was requested in the Fiscal Year 1962 Ship-

building Programme. The contract was awarded to the New York Shipbuilding Corporation, Camden, N.J. in June 1962. To cost about \$110,000,000. To be similar to *Bainbridge* but with some major equipment improvements, helicopter landing platform and hangar, and bow mounted long range sonar. Navy Tactical Data System, and 3 co-ordinate radar. The six torpedo tubes in two triple nests are of 12 inch diameter and are essentially anti-submarine weapons.

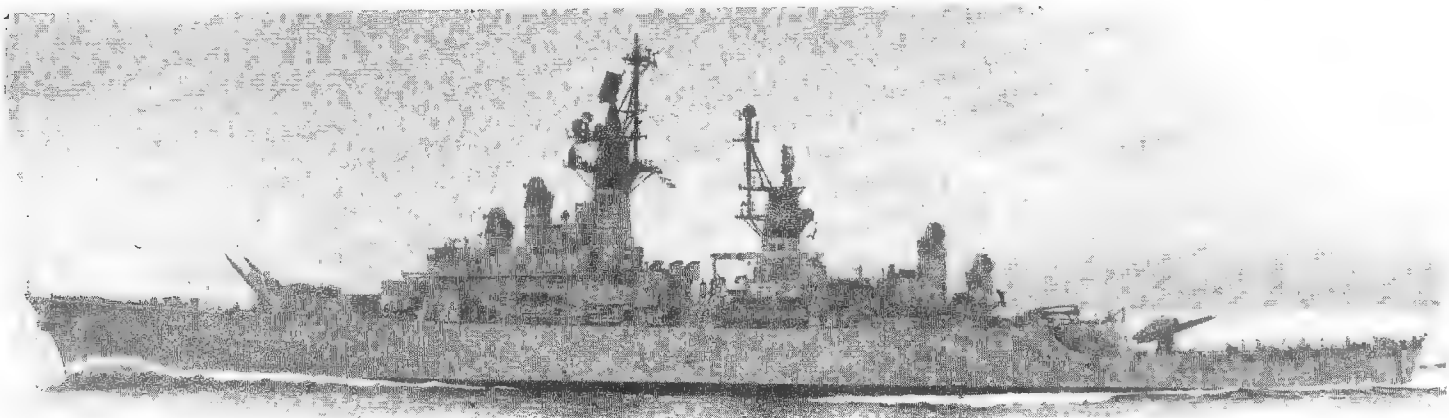
Scheduled to be commissioned for service in Mar. 1966 (official estimate), and to be deployed in the Pacific Fleet in 1966. Another nuclear powered guided missile frigate was requested in the Fiscal Year 1966 New Construction Programme.

Rescindment
The nuclear powered guided missile frigate (DLGN) requested in the Fiscal Year 1963 New Construction Programme was not authorised because the "Typhon" system was not available, and there are no longer plans for this particular design of DLGN, since the "Typhon" project has been cancelled as being too large and complex for

full reliability. The ship would have been the largest vessel in the broad, and now practically merging, destroyer-frigate category ever designed. She would have had a full load displacement of well over 9,000 tons with an overall length exceeding 600 feet and armed with a twin launcher for long range "Typhon" missiles, two single launchers for short range "Typhon" system missiles, giving her long

range and medium range surface-to-air, surface-to-surface, and surface-to-missile capability; two triple tube anti-submarine torpedo launchers. ASROC and DASH, two 5-inch dual purpose singly mounted guns, long range sonar, homing and wire-guided torpedos, and NTDS (Naval Tactical Data System). An official United States Navy artist's impression of this project appeared in the 1962-63 edition.

GUIDED MISSILE ARMED DESTROYER LEADERS (DLG)



GRIDLEY

1965, United States Navy, Official

Officially Rated as
Guided Missile Frigates (DLG)
9 "Belknap" Class

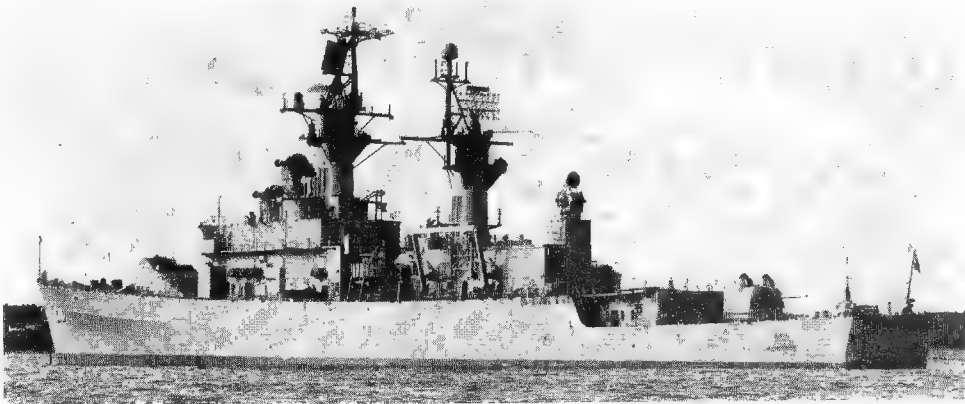
BELKNAP
BIDDLE
FOX
HORNE

JOSEPHUS DANIELS
JOUETT
STERETT
WAINWRIGHT
WILLIAM H. STANDLEY

No.	Name	Builders	Laid down	Launched	Completed
DLG 26	Belknap	Bath Iron Works Corp., Maine	5 Feb. 1962	20 July 1963	7 Nov. 1964
DLG 27	Josephus Daniels	Bath Iron Works Corp., Maine	23 Apr. 1962	2 Dec. 1963	8 May 1965
DLG 28	Wainwright	Bath Iron Works Corp., Maine	2 July 1962	25 Apr. 1964	Dec. 1965
DLG 29	Jouett	Puget Sound Naval Shipyard	25 Sep. 1962	30 June 1964	Mar. 1966
DLG 30	Horne	San Francisco Naval Shipyard	12 Dec. 1962	30 Oct. 1964	
DLG 31	Sterett	Puget Sound Naval Shipyard	25 Sep. 1962	30 June 1964	July 1966
DLG 32	William H. Standley	Bath Iron Works Corp., Maine	29 July 1963	19 Dec. 1964	May 1966
DLG 33	Fox	Todd Shipyards Corp., San Pedro	15 Jan. 1963	21 Nov. 1964	
DLG 34	Biddle	Bath Iron Works Corp., Maine	9 Dec. 1963	2 July 1965	

Displacement: 6,570 tons standard (7,930 tons full load)
Dimensions: Length: 547 feet. Beam: 54½ feet. Draught: 19½ feet
Guided weapons: Twin Terrier/ASROC dual launcher forward (for missiles and A/S rockets)
Guns: 1—5 inch, 54 cal. aft; 2—3 inch, 50 cal. (single) amidships
A/S weapons: ASROC launcher; 6 torpedo tubes (2 triple)
Machinery: Geared turbines. 2 shafts. S.H.P.: 85,000=34 kts.
Boilers: 4
Complement: Allowance: 395 (22 officers, 373 men). Accommodation for 420 (31 officers, 389 men)

General
Provided for under the Fiscal Year 1961 (first three) and 1962 (other six) building programmes. Helicopter platform aft. Anti-submarine warfare helicopters, and long range radar and sonar. Fitted with NTDS.



BELKNAP

1965, United States Navy, Official

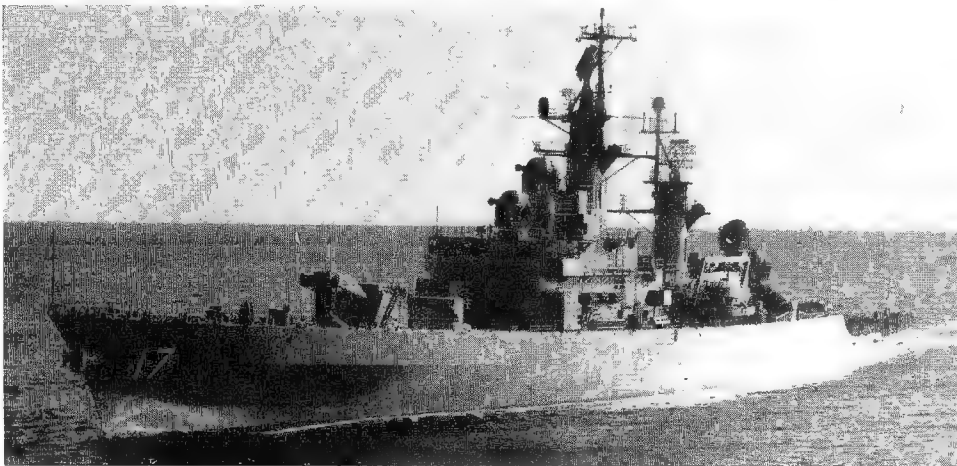
9 "Leahy" Class

DALE
ENGLAND
GRIDLEY
HALSEY

HARRY E. YARNELL
LEAHY
REEVES
RICHMOND K. TURNER
WORDEN

Displacement: 5,670 tons standard, 6,350 tons trials (7,000 tons full load)
Dimensions: Length: 533 (o.a.) feet. Beam: 53½ feet. Draught: 19 feet
Guided weapons: 2 twin launchers for "Terrier" surface-to-air missiles mounted fore and aft
Guns: 4—3 inch, 50 cal. AA. (2 twin)
A/S weapons: ASROC launcher; 6 torpedo tubes (2 triple)
Machinery: Geared turbines (see Engineering). 2 shafts. S.H.P.: 85,000=34 kts.
Boilers: 4 (see Engineering)
Complement: Allowance: 372 (22 officers, 350 men). Accommodation for 31 officers, 365 men

General
Very large guided missile destroyer leaders or frigates approaching the light cruiser category. The design is an improvement on that of the "Coontz" class. DLG 16, DLG 17 and DLG 18 were provided for under the Fiscal Year 1958 Programme and DLG 19, DLG 20, DLG 21, DLG 22, DLG 23 and DLG 24 under the Fiscal Year 1959 Programme. Halsey and Reeves are of a different scheme. Fitted with the Naval Tactical Data System (NTDS).



HARRY E. YARNELL

1963, United States Navy, Official

Construction
These nine guided missile frigates were a new class with Leahy as the prototype. They are larger than the "Coontz" class and mount "Terrier" launchers fore and aft, also conventional weapons, and carry long range sonar and long and short range anti-submarine weapons. All are conventionally powered. They have "macks" in place of masts and stacks.

Engineering
Halsey and Reeves have two sets of Allis-Chalmers-Falk geared turbines, Leahy, Harry E. Yarnall, Worden and Dale have General Electric, and Richmond K. Turner, Gridley and England have De Laval.
DLG 16 to 18 have Babcock & Wilcox boilers, and DLG 19 to 24 have Foster-Wheeler.

Photographs
A port bow view of Leahy appears in the 1962-63 to 1964-65 editions, and a starboard bow view in the 1963-64 and 1964-65 editions.

Conversion
Two of the "Leahy" class are to be converted to AAW under the 1966 programme (three dimensional search radars, NTDS).

No.	Name	Builders	Laid down	Launched	Completion
DLG 16	Leahy	Bath Iron Works Corp., Maine	3 Dec. 1959	1 July 1961	4 Aug. 1962
DLG 17	Harry E. Yarnell	Bath Iron Works Corp., Maine	31 May 1960	9 Dec. 1961	2 Feb. 1963
DLG 18	Worden	Bath Iron Works Corp., Maine	19 Sep. 1960	2 June 1962	3 Aug. 1963
DLG 19	Dale	New York S.B. Corp., Camden	6 Sep. 1960	28 July 1962	2 Nov. 1963
DLG 20	Richmond K. Turner	New York S.B. Corp., Camden	9 Jan. 1961	6 Apr. 1963	28 May 1964
DLG 21	Gridley	Puget Sound B. & D. Co., Seattle	15 July 1960	31 July 1961	25 May 1963
DLG 22	England	Todd Shipyards Corp., San Pedro	4 Oct. 1960	6 Mar. 1962	7 Dec. 1963
DLG 23	Halsey	San Francisco Naval Shipyard	26 Aug. 1960	15 Jan. 1962	20 July 1963
DLG 24	Reeves	Puget Sound Naval Shipyard	1 July 1960	12 May 1962	16 May 1964



DAHLGREN

1965, Captain Aldo Fraccoroli

Officially Rated as
Guided Missile Frigates (DLG)—contd.

10 "Coontz" Class

COONTZ	LUCE (ex-Dewey)
DAHLGREN	MACDONOUGH
DEWEY	MAHAN
FARRAGUT	PREBLE
KING	WILLIAM V. PRATT
Displacement:	4,700 tons standard, (5,600 tons full load)
Dimensions:	Length: 512½ (w.l.), 520 (o.a.) feet Beam: 52½ feet, Draught: 20 feet
Guns:	1—5 inch, 54 cal. d.p. forward; 4—3 inch, 50 cal. in 2 twin mounts amidships
Guided weapons:	One twin launcher aft for advanced "Terrier" missiles ("Terrier III"). 40 missiles carried
A/S weapons	ASROC 8-tube "Pepperbox" launcher, 6 fixed torpedo launchers in 2 triple nests.
Machinery:	2 geared turbines. 2 shafts. S.H.P.: 85,000=34 kts. (see Engineering)
Boilers:	4 (1,200 lbs. pressure)
Complement:	Allowance: 355 (20 officers, 335 men). Accommodation for 28 officers, 350 men

General
Guided missile ships of the destroyer leader or large frigate category, improved versions of the original destroyer leaders (afterwards re-rated as frigates) of the "Mitscher" type. Designed to destroy air targets. These ships also have anti-submarine and early warning capabilities. They were intended primarily as anti-aircraft and anti-submarine warfare ships. They can also screen high speed task forces, support amphibious operations and are capable of operating independently. The light displacement was officially stated to be 3,900 tons. Dewey was the first ship equipped with the advanced "Terrier" missile, which supersedes the original "Terrier" which has been in service in the Fleet since Jan. 1956. Coontz, Farragut, King Luce, Macdonough and Mahan were provided for under the Fiscal Year 1956 programme appropriations; Dahlgren, William V. Pratt, Dewey and Preble were provided for under the 1957 Fiscal Year programme appropriations. DLG 7, the ship which it was originally announced would be named Dewey, was renamed Luce in 1957 Cost \$51,000,000 each. King and Mahan are equipped with NTDS (Navy Tactical Data System).

Engineering
Coontz, King, Mahan, Dahlgren, William V. Pratt and Dewey have two sets of Allis-Chalmers-Falk geared turbines of high speed and light weight working at a pressure of 1,200 lbs. per sq. inch and a temperature of 970 degrees Fahrenheit with superheated steam and developing 85,000 shaft horse power. Farragut, Luce, Macdonough, and Preble have De Laval turbines of 85,000 S.H.P.,

Photographs
A starboard broadside view of Dewey appears in the 1960-61 to 1963-64 editions, a starboard bow oblique view of King in the 1961-62, 1962-63 and 1964-65 editions, and a starboard bow view of Dahlgren in the 1963-64 and 1964-65 editions.



MAHAN

1965, United States Navy, Official



PREBLE (showing "Terriers" aft, in "Y" position)

1961, United States Navy, Official

No.	Name	Builders	Laid down	Launched	Completed
DLG 6	Farragut	Bethlehem Steel Co., Quincy	3 June 1957	18 July 1958	17 Feb. 1961
DLG 7	Luce	Bethlehem Steel Co., Quincy	1 Oct. 1957	11 Dec. 1958	15 July 1961
DLG 8	Macdonough	Bethlehem Steel Co., Quincy	15 Apr. 1958	9 July 1959	12 Jan. 1962
DLG 9	Coontz	Puget Sound Naval Shipyard	2 Mar. 1957	6 Dec. 1958	15 July 1960
DLG 10	King	Puget Sound Naval Shipyard	2 Mar. 1957	6 Dec. 1958	17 Nov. 1960
DLG 11	Mahan	San Francisco Naval Shipyard	29 July 1957	7 Oct. 1959	28 Nov. 1960
DLG 12	Dahlgren	Philadelphia Naval Shipyard	1 Mar. 1958	16 Mar. 1960	15 July 1961
DLG 13	William V. Pratt	Philadelphia Naval Shipyard	1 Mar. 1958	16 Mar. 1960	30 Dec. 1961
DLG 14	Dewey	Bath Iron Works, Bath, Maine	10 Aug. 1957	30 Nov. 1958	7 Dec. 1959
DLG 15	Preble	Bath Iron Works, Bath, Maine	16 Dec. 1957	23 May 1959	9 May 1960

GUIDED MISSILE ARMED DESTROYERS (DDG)



CLAUDE V. RICKETTS

1965, Captain Aldo Fraccoroli

23 "Charles F. Adams" Class
2 Avondale Marine Ways, Inc., New Orleans, Louisiana

DDG 18 SEMMES
DDG 19 TATTNALL
4 Bath Iron Works, Bath, Maine

DDG 2 (ex-DDG 952) CHARLES F. ADAMS
DDG 3 (ex-DDG 953) JOHN KING
DDG 10 SAMPSON
DDG 11 SELLERS

4 Defoe Shipbuilding Co., Bay City, Michigan

DDG 7 (ex-DDG 957) HENRY B. WILSON
DDG 8 (ex-DDG 958) LYNDE McCORMICK
DDG 12 ROBISON
DDG 13 HOEL

6 New York Shipbuilding Corp., Camden, New Jersey

DDG 4 (ex-DDG 954) LAWRENCE
DDG 5 (ex-DDG 955) CLAUDE V. RICKETTS (ex-Biddle)**
DDG 6 (ex-DDG 956) BARNEY
DDG 15 BERKELEY
DDG 16 JOSEPH STRAUSS
DDG 17 CONYNGHAM

3 Puget Sound Bridge and Dry Dock Co., Seattle, Wash.

DDG 20 GOLDSBOROUGH
DDG 21 COCHRANE
DDG 22 BENJAMIN STODDERT

4 Todd Shipyards, Inc., Seattle, Washington

DDG 9 (ex-DDG 959) TOWERS
DDG 14 BUCHANAN
DDG 23 RICHARD E. BYRD
DDG 24 WADDELL

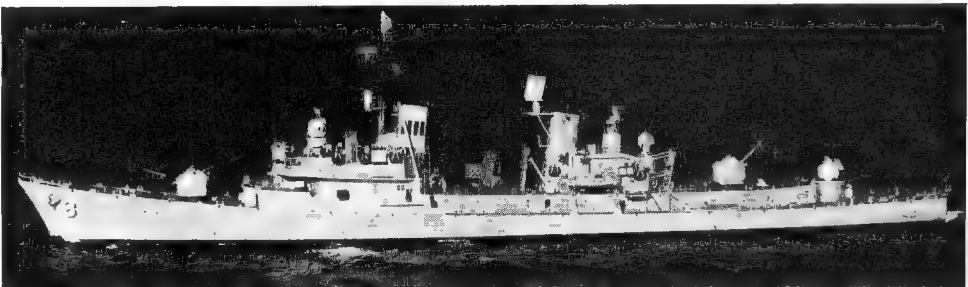
Displacement: 3,370 tons standard (4,500 tons full load)
Dimensions: 431 (w.l.), 437 (o.a.)×47×20 feet
Guns: 2—5 inch, 34 cal. single
Guided weapons: Twin "Tartar" surface-to-air missile launcher
A/S weapons: Rocket launchers (ASROC), 2 triple tube torpedo launchers.
Machinery: Geared steam turbines, 2 shafts. S.H.P.:70,000—35 kts.
Boilers: 4
Complement: Allowance: 333 (18 officers, 315 men). Accommodation for 24 officers, 330 men

General
DDG 2—9 were provided under the Fiscal Year 1957 Appropriations, DDG 10-14 in 1958, DDG 15-19 in 1959, DDG 20-22 in 1960, and DDG 23, 24 under the 1961 programme. They are equipped to launch the "Tartar" surface-to-air missile with a range of 10 to 20 miles. In addition they are equipped with the latest in long range anti-submarine warfare weapons. As compared with previous destroyers, the ships have greater length overall, more beam and heavier displacement. They have a new hull design which is an evolution of the "Forrest Sherman" (DD 931) type and, like the "Forrest Sherman" class, have aluminium superstructure. The most recent habitability improvements have been incorporated into their construction, including air conditioning of all living spaces. Cost: about \$17,000,000 to \$18,000,000 each (with missiles and electronics \$34,000,000 each).

Engineering
DDG 2, 3, 7, and 8 have General Electric steam turbines and electric generators.

Gunnery
The original design provided for two 5 inch guns, one forward in "A" position and one aft in "Y" position (anti-submarine weapons in "B" position and guided weapons in "X" position) but the after ("Y") 5 inch gun was suppressed in favour of a guided missile launcher, and re-sited in "Y" position.

Nomenclature
**Biddle was renamed Claude V. Ricketts on 28 July 1964.



LYNDE McCORMICK

1965, United States Navy, Official



GOLDSBOROUGH

1964, courtesy Mr. J. C. Jeremy

No.	Name	Laid down	Launched	Completed
DDG 2	Charles F. Adams	16 June 1958	8 Sep. 1959	10 Sep. 1960
DDG 3	John King	25 Aug. 1958	30 Jan. 1960	21 Mar. 1961
DDG 4	Lawrence	27 Oct. 1958	27 Feb. 1960	10 Feb. 1962
DDG 5	Claude V. Ricketts	18 May 1959	4 June 1960	18 Aug. 1962
DDG 6	Barney	10 Aug. 1959	10 Dec. 1960	25 Sep. 1962
DDG 7	Henry B. Wilson	28 Feb. 1958	22 Apr. 1959	24 Feb. 1961
DDG 8	Lynde McCormick	4 Apr. 1958	28 July 1959	31 July 1961
DDG 9	Towers	1 Apr. 1958	23 Apr. 1959	20 July 1961
DDG 10	Sampson	2 Mar. 1959	21 May 1960	15 Aug. 1961
DDG 11	Sellers	3 Aug. 1959	9 Sep. 1960	18 Jan. 1962
DDG 12	Robison	28 Apr. 1959	27 Apr. 1960	29 Jan. 1962
DDG 13	Hoel	3 Aug. 1959	4 Aug. 1960	31 July 1962
DDG 14	Buchanan	23 Apr. 1959	11 May 1960	23 Mar. 1962
DDG 15	Berkeley	29 Aug. 1960	29 July 1961	15 Dec. 1962
DDG 16	Joseph Strauss	27 Dec. 1960	9 Dec. 1961	20 Apr. 1963
DDG 17	Conyngham	1 May 1961	19 May 1962	13 July 1963
DDG 18	Semmes	18 Aug. 1960	20 May 1961	10 Dec. 1962
DDG 19	Tattnell	14 Nov. 1960	26 Aug. 1961	13 Apr. 1963
DDG 20	Goldsborough	3 Jan. 1961	15 Dec. 1961	9 Nov. 1963
DDG 21	Cochrane	31 July 1961	18 July 1962	21 Mar. 1964
DDG 22	Benjamin Stoddert	11 June 1962	8 Jan. 1963	12 Sep. 1964
DDG 23	Richard E. Byrd	12 Apr. 1961	6 Feb. 1962	7 Mar. 1964
DDG 24	Waddell	6 Feb. 1962	26 Feb. 1963	28 Aug. 1964

Guided Missiles

"Tartar" weapons are smaller than "Terrier" missiles, 42 missiles are carried. Missiles are 15 feet long and 1 foot in diameter.

Anti-Submarine

DDG 20, 21 and 22 have bow mounted long range sonar.

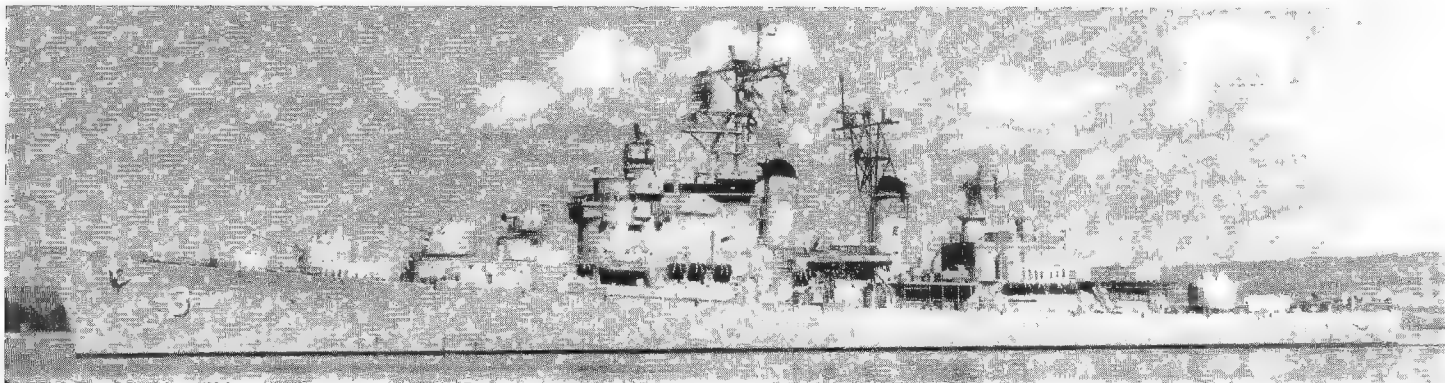
Photographs

A large starboard bow surface view of Charles F. Adams, and a port bow oblique aerial view of John King appear in the 1961-62 and 1962-63 editions, a starboard quarter surface view of John King in the 1963-64 edition, starboard bow aerial view of Henry B. Wilson in the 1961-62 to 1963-64 editions, a starboard broadside surface view of Berkeley in the 1963-64 and 1964-65 editions, and a starboard quarter oblique view of Claude V. Ricketts in the 1964-65 edition.

Class

DDG 25, DDG 26 and DDG 27 were built by Defoe Shipbuilding Co., Bay City, Michigan, for the Royal Australian Navy. (DDG 27 awarded in Feb. 1964). DDG 28, DDG 29, and DDG 30 are being built by Bath Iron Works, Maine, for the Federal German Navy at a cost of \$43,754,000.

DESTROYER LEADERS (DL) Future Conversion to Destroyers (DDG)



JOHN S. MCCAIN

1962, courtesy Mr. W. H. Davis

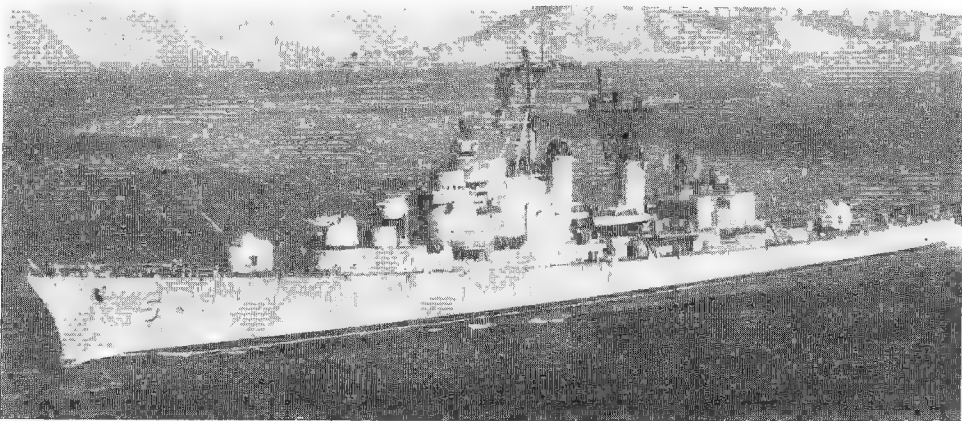
Officially rated as **Frigates (DL)**
4 "Mitscher" Class

MITSCHER, DDG 35 (ex-DL 2, ex-DD 927)
JOHN S. MCCAIN, DDG 36 (ex-DL 3, ex-DD 928)
WILLIS A. LEE, DDG 37 (ex-DL 4, ex-DD 929)
WILKINSON, DDG 38 (ex-DL 5, ex-DD 930)

- Displacement: 3,675 tons standard (4,730 tons full load)
Dimensions: 450 (pp.), 493 (o.a.)×49×21 feet
Guided weapons: "Tartar" launcher in converted ships
Guns: 2—5 inch, 54 cal. d.p. (single), 2—3 inch, AA. (1 twin)
A/S weapons: 1 Mark 108 ASW rocket launcher (Weapons "Alpha") 4—21 inch fixed torpedo tubes, 1 D.C.T. ASROC launcher in converted ships
Machinery: Geared steam turbines, 2 shafts. S.H.P.: 80,000=35 kts.
Boilers: Mitscher and John S. McCain; 4 controlled circulation type, 1,225 lb. per sq. in. pressure, 950 deg. F. superheat
Willis A. Lee and Wilkinson; 4 Foster Wheeler 2 drum type, 1,200 lb. per sq. in. pressure, 965 deg. F. superheat.
Complement: Allowance: 339 (19 officers 320 men). Accommodation for 30 officers, 350 men

General
Begun as Destroyers (DD) but re-rated as Destroyer Leaders (DL) while building in 1951 and again re-rated as Frigates (DL) on 1 Jan. 1955. They were then the largest destroyers ever built in the United States and in the world. Of a new design specifically constructed as a long-range fleet type for both administrative and anti-submarine duties. All ordered on 3 Aug. 1948. Named after United States admirals of the Second World War. Propelling machinery of light weight, includes many advanced engineering features. Used as destroyer squadron flagships. *Wilkinson* and *Willis A. Lee* are fitted with bow-mounted sonar in new 70-ft. bow section. Masts have been rerigged in all units with the crow's nest removed and replaced by "Tacan" dome. All being re-rated as Guided Missile Destroyers (DDG), see *Conversion*.

Gunnery
The 5 inch guns are fully automatic loading, rapid fire, radar controlled. Newer longer range 3 inch, 70 cal. mountings were installed in 1957-58 in place of the former 3 inch, 50 cal. guns. The after 3 inch, 70 cal. twin mounting and the four 20 mm. AA. (twin) guns were removed for a helo platform in all ships (see *Helicopter* notes).



WILKINSON

1964, United States Navy, Official

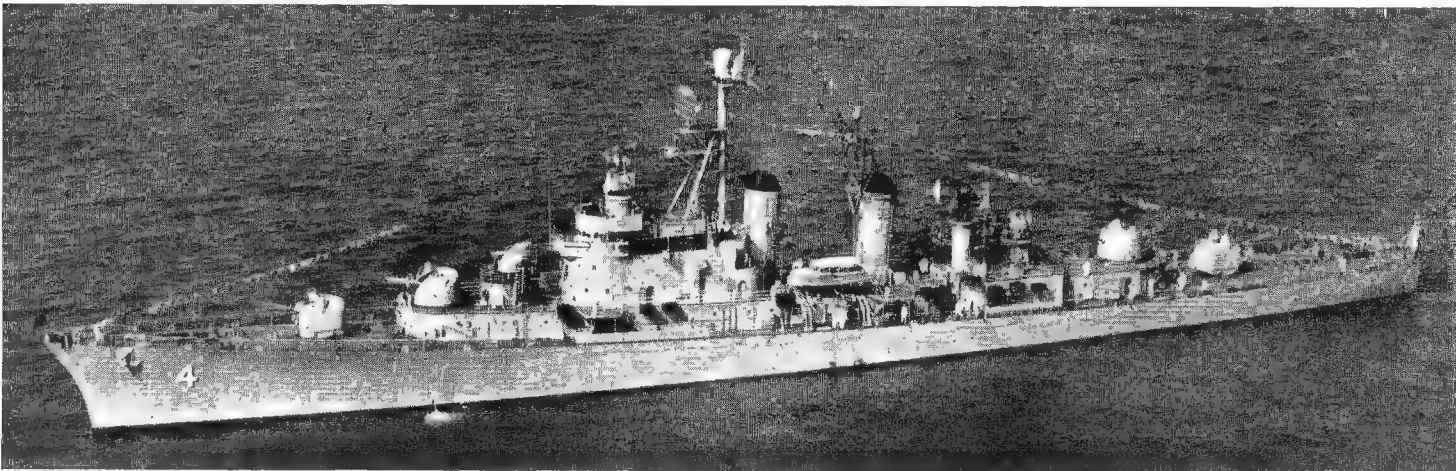
Engineering
Mitscher and *John S. McCain*: 2 General Electric reduction type. Main reduction gears; General Electric double reduction; *Willis A. Lee* and *Wilkinson*: 2 Westinghouse, turbine reduction type. Main reduction gears; De Laval double reduction.

Conversion
Mitscher and *John S. McCain* are being converted into guided missile armed destroyers DDG 35 and DDG 36 at Philadelphia Naval Shipyard under the Fiscal Year 1964 Conversion Programme, with "Tartar" missile launcher and ASROC anti-submarine rocket launcher, and all ships of the class will eventually be converted.

Helicopter Operation
The stern was cleared for anti-submarine helicopter operations. *John S. McCain*, *Mitscher* and *Wilkinson* completed the DASH installation in Apr. 1960, and *Willis A. Lee* subsequently, including the removal of the after 3 inch guns to make way for a 50×30 ft. landing platform and hangar for 2 drone anti-submarine helicopters.

Photographs
A starboard quarter view of *Mitscher* appears in the 1957-58 to 1959-60 editions, and a starboard bow oblique aerial view of *Mitscher* with helicopter aft appears in the 1960-61 to 1963-64 editions.

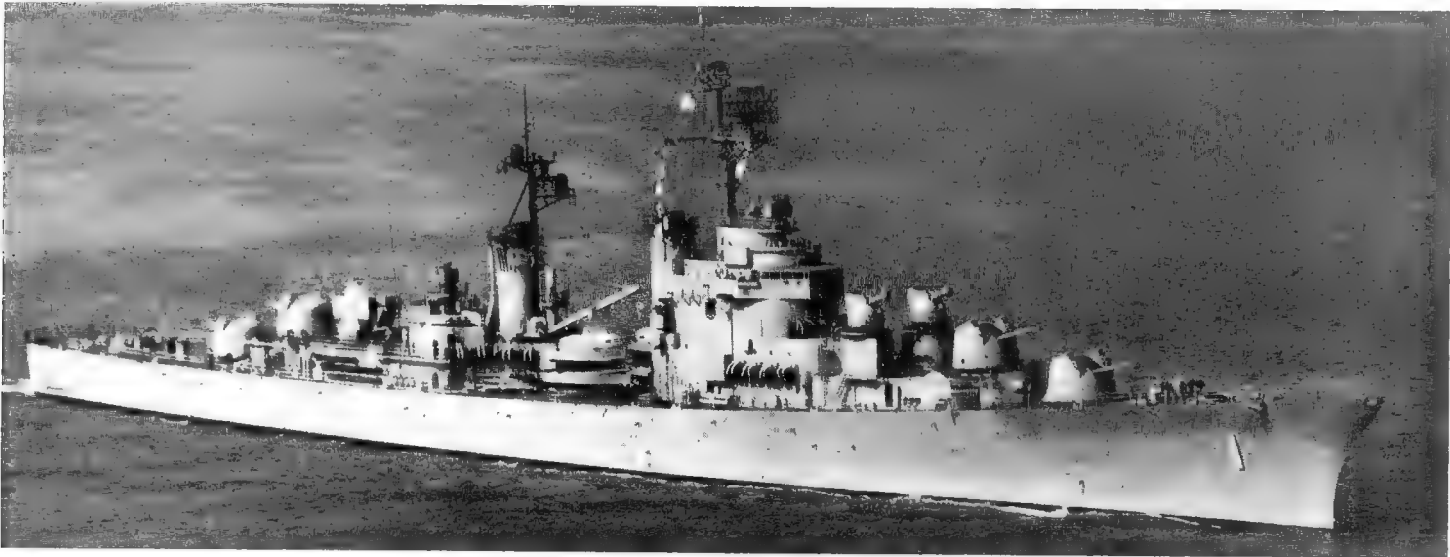
Name	Builders	Laid down	Launched	Completed
<i>Mitscher</i>	Bath Iron Works Corpn., Maine	3 Oct. 1949	26 Jan. 1952	16 May 1953
<i>John S. McCain</i>	Bath Iron Works Corpn., Maine	24 Oct. 1949	12 July 1952	12 Oct. 1953
<i>Willis A. Lee</i>	Bethlehem Steel Co., Quincy	1 Nov. 1949	26 Jan. 1952	28 Sep. 1954
<i>Wilkinson</i>	Bethlehem Steel Co., Quincy	1 Feb. 1950	23 Apr. 1952	29 July 1954



WILLIS A. LEE

1959, "Our Navy" Photo

DESTROYER LEADER (DL) Former Anti-Submarine Light Cruiser (CLK)



NORFOLK

1964, courtesy "Our Navy"

Officially rated as **Frigate (DL)** (Formerly rated as *Cruiser, Hunter Killer Ship, CLK*)

I "Norfolk" Type

NORFOLK	
Displacement:	5,600 tons standard (7,300 tons full load)
Dimensions:	Length: 520 (w.l.), 540½ (o.a.) feet. Beam: 54½ feet Draught: 26 feet
Guns:	8—3 inch, 70 cal. (4 twin)
A/S weapons	ASROC, 2 Mark 108 rocket launchers, 6 ASW fixed torpedo tubes (2 triple)
Machinery:	2 sets G.E. geared turbines, 2 shafts, S.H.P.: 80,000=32 kts.
Boilers:	4 Babcock & Wilcox 2 drum, 1,200 lb. per sq. in. pressure, 950 deg. F.
Oil fuel	1,400 tons
Radius:	7,000 miles at 15 kts.
Complement:	Allowance: 411 (26 officers, 385 men. Accommodation for 42 officers, 505 men

No.:	DL 1 (ex-CLK 1)
Builders:	New York Shipbuilding Corporation, Camden New Jersey
Ordered:	17 Nov. 1948
Laid down:	1 Sep. 1949
Launched:	29 Dec. 1951
Completed:	4 Mar. 1953

General
Designed as a special category of anti-submarine vessel of cruiser size and entirely novel type to engage in hunter killer operations even in the worst weather, and incorporates lessons learned at Bikini in her construction. Built on a true cruiser hull. Cost, exclusive of armament, reported to be \$44,000,000. Re-rated in 1951 as a Destroyer Leader (DL), a category then new to the U.S. Navy, but reclassified as a Frigate (DL) on 1 Jan. 1955. Intended to serve as flagship for destroyer screens attached to fast carrier forces.

Anti-Submarine
Used primarily as a test ship for new anti-submarine equipment. The largest and heaviest sonar dome (39,500 lbs., or nearly 18 tons) was installed at Norfolk Naval Shipyard in 1958. Fitted with ASROC (anti-submarine rocket) and carried out evaluation of the then new

weapon. The ASROC system consists of an integrated sonar device, an electrical digital fire-control computer, an eight missile launcher and the ASROC missiles themselves. Either a rocket, propelled torpedo or a depth charge can be fired from the launcher. Stern cleared for anti-submarine helicopter operations.

Gunnery
The 8—20 mm. AA. guns were removed.

Engineering
The trial speed exceeded 34 knots. (35 knots reached.) Shafts are fitted with six-bladed propellers.

Appearance
Has hull form resembling that of the cruisers of the "Juneau" class, with tall bridge structure and curved stem. Note her bow view similarity to the "Mitscher" class, though she is a much larger ship.

Photographs
A starboard bow oblique aerial view appears in the 1959-60 edition, and a starboard quarter view in the 1957-58 to 1959-60 editions.

Class
Two Hunter Killer Ships were authorised in 1947. *Norfolk* (originally CLK 1), subsequently DL-1 (Destroyer Leader), was commissioned for service on 4 March 1953. The construction of the projected CLK 2 was deferred in 1949.

DESTROYER (DD) Former Guided Missile Armed Destroyer (DDG)

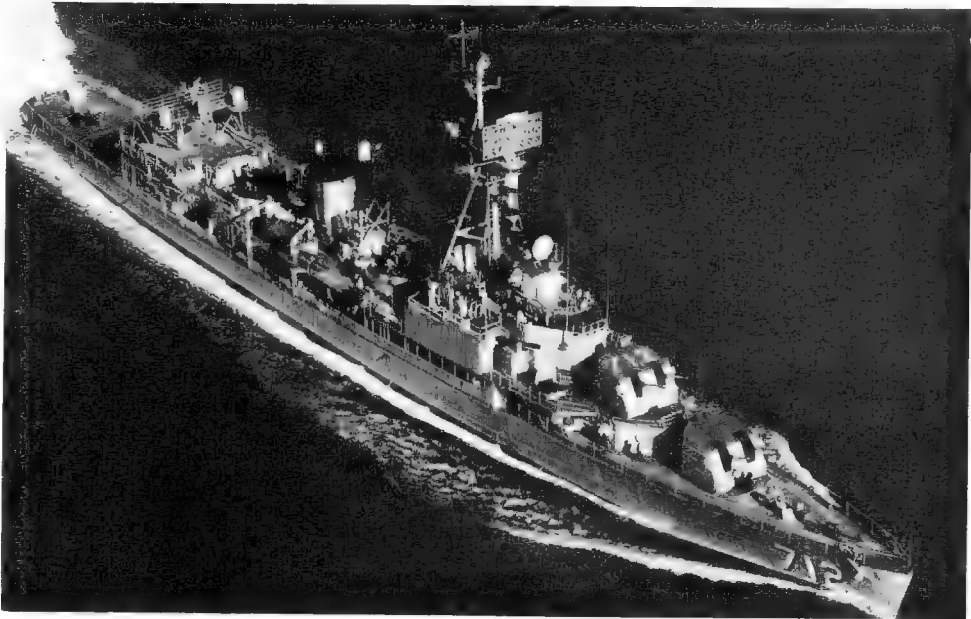
Experimental Destroyer
I Converted "Gearing" Class

GYATT, DD 712 (ex-DDG 1, ex-DDG 712, ex-DDG 1, ex-DD 712)	
Builders:	Federal Shipbuilding & Dry Dock Co.
Launched:	15 Apr. 1945
Completed:	2 July 1945
Converted:	30 Dec. 1956
Displacement:	2,400 tons standard (3,480 tons full load)
Dimensions:	390½×41×19 feet
Guns:	4—5 inch, 38 cal. (two twin forward) 4—3 inch, 50 cal. (two twin, one abaft each funnel)
A/S weapons	2 Hedgehogs and 2 torpedo racks
Machinery:	Geared turbines, 2 shafts, S.H.P.: 60,000=35 kts.
Boilers:	4
Oil fuel:	680 tons
Radius:	6,000 miles at 15 kts.
Complement:	296 (16 officers and 280 men)

General
Originally a normal fleet destroyer (DD) of the "Gearing" class. The ship was the third U.S. Navy warship to carry the guided missile designation (the first two were the *Boston* and *Canberra*, both heavy cruisers).

Conversion
Her conversion to the world's first guided missile destroyer (DDG) was provided for under the Fiscal 1956 Appropriations. Converted at the Boston Naval Shipyard, Massachusetts; and fitted with the complete "Terrier" missile installation, to test the feasibility of converting existing destroyers to guided missile destroyers. Commissioned on 3 Dec. 1956. Gyatt was the Navy's economical approach to a guided missile destroyer by conversion rather than by new construction.

Guided Missiles
The 14 "Terrier" missiles were carried in twin magazines level with the main deck. The twin missile launcher rotated to all points. The missile installation was removed in 1962 and the ship was reclassified as a destroyer, DD, and assigned to the operational test and development force, the after deck house being retained for experimental equipment.



GYATT

1965, United States Navy, Official

Stabilisation
The U.S. Navy's first warship to have a stabilisation system (British Denny-Brown retractable fin stabilisers) added to her hull structure. The system is designed to eliminate much of the rolling characteristic of small ships. It consists of two 45 sq. ft. retractable fins extending out from midships well below the waterline.

Anti-Submarine
Had modern anti-submarine ordnance, and was capable of countering enemy attack whether by supersonic aircraft or modern submarine.

Reclassification
Reclassified from DD 712 to DDG 1 on 1 Dec. 1955; to DDG 712 on 30 Dec. 1956; to DDG 1 on 23 May 1957; and to DD 712 on 1 Oct. 1962.

Photographs
Starboard quarter and port bow view of Gyatt in the 1957-58 edition. Starboard quarter view in the 1959-60 edition. Port quarter oblique aerial view in the 1961-62 and 1962-63 editions. Starboard broadside view in the 1957-58 to 1963-64 editions. Port broadside view in the 1964-65 edition.

DESTROYERS (DD) Future Conversion to DDG



MANLEY

1965, Captain Aldo Fraccaroli

18 "Forrest Sherman" Class

9 Bath Iron Works Corpn.	5 Bethlehem Steel Co., Quincy
DD 931 FORREST SHERMAN	936 DECATUR
932 JOHN PAUL JONES	937 DAVIS
933 BARRY	938 JONAS INGRAM
940 MANLEY	943 BLANDY
941 DU PONT	944 MULLINNIX
942 BIGELOW	2 Ingalls S.B. Corpn.
945 HULL	948 MORTON
946 EDSON	949 PARSONS
947 SOMERS	2 Puget Sound B. & D. Co.
	950 RICHARD S. EDWARDS
	951 TURNER JOY

Displacement:	2,850 tons standard (4,200 tons full load)
Dimensions:	418½×45×19½ feet
Guns:	3—5 inch, 54 cal. d.p. (1 forward, 2 aft), 4—3 inch, 50 cal. AA.
A/S weapons	2 Hedgehogs, 6 homing torpedo tubes (2 triple)
Machinery:	2 geared steam turbines, 2 shafts. S.H.P.: 70,000=over 33 kts.
Boilers:	4
Complement:	Allowance: 276 (16 officers, 260 men). Accommodation for 22 officers, 315 men.

General

This class of destroyers is regarded as dry, comfortable and successful. The construction of the first three was provided for under the 1952-53 programme. Not radical in design but embody certain improvements in armament. Increased freeboard forward. Entire ship's structure above main deck including gun foundations is of aluminium to obtain maximum stability while maintaining minimum ship displacement. Air conditioned throughout. (DD 934 was ex-Japanese Hanazuki, DD 935 was ex-German T 35, DD 939 was ex-German Z 39).

Conversion

Five of this class will be modernised under the 1964 Conversion Programme, with "Tartar" missile launcher and drone anti-submarine helicopter (DASH), and all 18 may eventually be converted.

To be converted: DD 936 to DDG 31 at Boston Naval Shipyard, DD 932 to DDG 32 at Philadelphia Naval Shipyard, DD 949 to DDG 33 at Long Beach Naval Shipyard, DD 947 to DDG 34 at San Francisco Naval Shipyard. DD 933 is scheduled for ASW modification.

Gunnery

The first United States warship with guns arranged to provide more fire power aft than forward.

Sonar

In 1959 Barry was fitted with a new clipper bow housing a new type of sonar dome (further aft in other ships), and has stem anchor only.

Nomenclature

Joy was renamed Turner Joy on 26 July 1957.

Photographs

Photographs appear of John Paul Jones in the 1956-67 to 1959-60 editions, of Decatur and Mullinnix in the 1959-60 to 1962-63 editions, of Du Pont in the 1961-62 and 1962-63 editions, and of Forrest Sherman in the 1963-64 and 1964-65 editions.

Name	Laid down	Launched	Completed
Forrest Sherman	27 Oct. 53	5 Feb. 55	9 Nov. 55
John Paul Jones	18 Jan. 54	7 May 55	5 Apr. 56
Barry	15 Mar. 54	1 Oct. 55	31 Aug. 57
Decatur	13 Sep. 54	15 Dec. 55	30 Nov. 56
Davis	1 Feb. 55	28 Mar. 56	6 Mar. 57
Manley	10 Feb. 55	12 Apr. 56	1 Feb. 57
Jonas Ingram	15 June 55	8 July 56	19 July 57
Du Pont	11 May 55	8 Sep. 56	1 July 57
Blandy	29 Dec. 55	19 Dec. 56	26 Nov. 57
Bigelow	6 July 55	2 Feb. 57	8 Nov. 57
Mullinnix	5 Apr. 56	18 Mar. 57	7 Mar. 58
Hull	12 Sep. 56	10 Aug. 57	2 June 58
Edson	3 Dec. 56	1 Jan. 58	7 Nov. 58
Richard S. Edwards	20 Dec. 56	24 Sep. 57	5 Feb. 59
Morton	4 Mar. 57	23 May 58	16 Mar. 59
Somers	4 Mar. 57	30 May 58	3 Apr. 59
Parsons	17 June 57	19 Aug. 58	29 Oct. 59
Turner Joy	30 Sep. 57	5 May 58	3 Aug. 59



BLANDY

1963, "Our Navy" Photo



BIGELOW

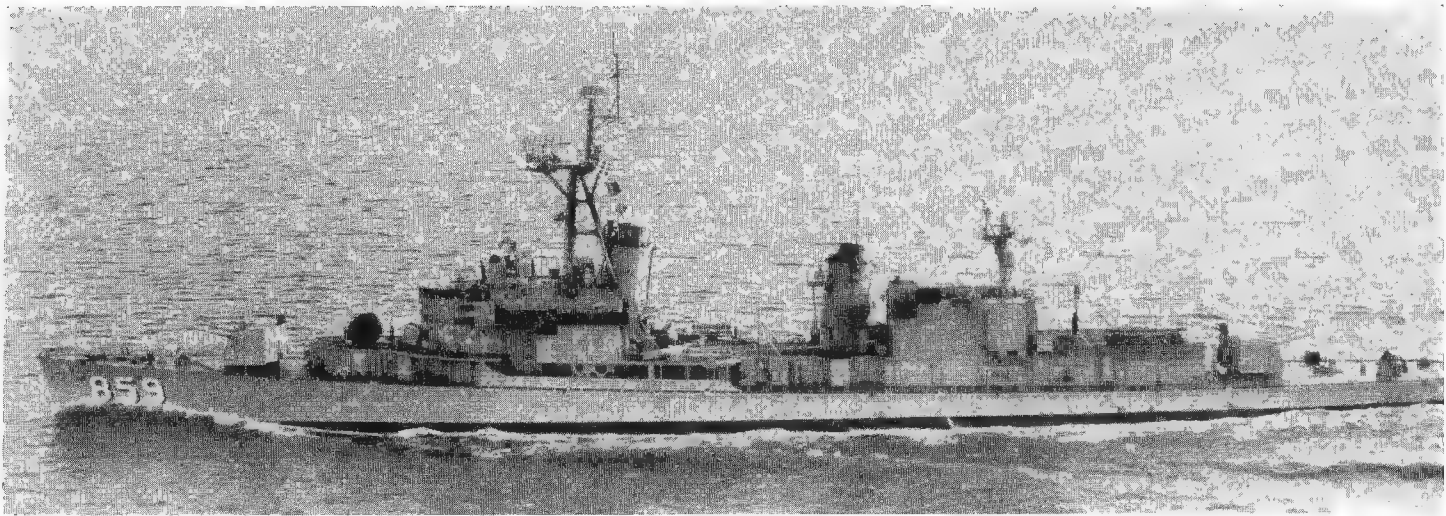
1963, A. & J. Pavia



BARRY (clipper bow, stem anchor)

1960 Erich Gröner

Destroyers—continued



NORRIS (after FRAM II conversion)

1963, United States Navy, Official

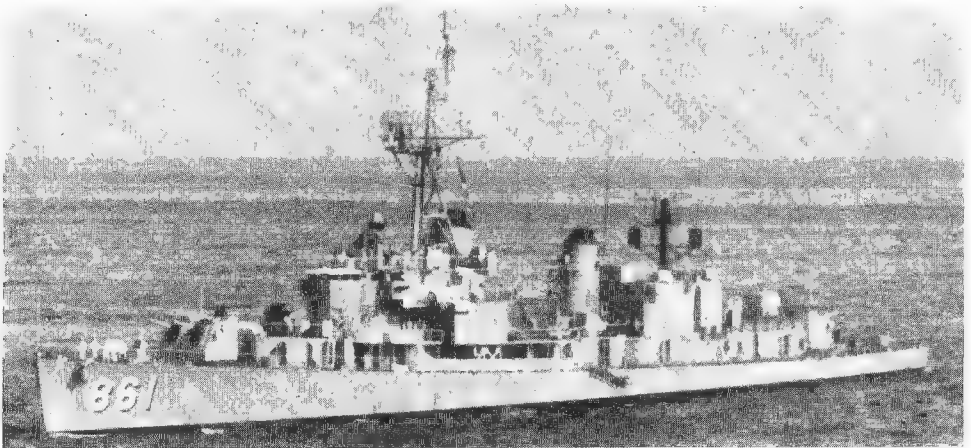
Destroyers (DD, ex-DDE, ex-DDK)

8 "Carpenter" Class

1 Bath Iron Works Corpn.	4 Bethlehem, S. Pedro
827 ROBERT A. OWENS	858 FRED T. BERRY
(15 July 1946)	(28 Jan. 1945)
2 Bethlehem, S. Francisco	861 HARWOOD
765 KEPPLER	(24 May 1945)
(24 June 1946)	860 McCAFFERY
764 LLOYD THOMAS	(12 Apr. 1945)
(5 Oct. 1945)	859 NORRIS
	(25 Feb. 1945)
1 Consolidated Steel Corpn. (Completed by Newport News)	
825 CARPENTER (30 Dec. 1945)	

Displacement:	Carpenter and Robert A. Owens: 2,500 tons standard (3,550 tons full load) Other six: 2,425 tons standard (3,500 tons full load)
Dimensions:	390½ (o.a.)×41×19 feet
Guns:	Carpenter and Robert A. Owens: 4—3 inch (2 twin) Other six: 4—5 inch, 38 cal. Trainable hedgehog, 2—21 inch fixed torpedo tubes, 6 homing torpedo tubes (2 triple), 2 helicopters (DASH)
A/S weapons:	Geared turbines, 2 shafts, S.H.P.: 60,000=35 kts.
Machinery:	
Boilers:	4
Oil fuel:	650 tons
Radius:	5,800 miles at 15 kts.
Complement:	Allowance: 264 (14 officers, 250 men. Accommodation for 21 officers, 270 men

General
Originally designed as units of the "Gearing" class. Robert A. Owens and Carpenter, towed to Newport News in 1947, were completed as Hunter-killer Des-



HARWOOD

1964, A. & J. Pavia

troys on Nov. 5, 1949, and Dec. 15, 1949, respectively. The remaining six were converted under the 1949 Program. Launch dates above. They were rated as DDKs until March 4, 1950, when the DDE and DDK types merged. All reclassified as DD on 30 June 1962.

Conversion

Fred T. Berry, Keppler, Lloyd Thomas, McCaffery and Norris have undergone FRAM II conversion, and Carpenter and Robert A. Owens FRAM I conversion.

Gunnery

Robert A. Owens had six 3-inch guns. In Carpenter the forward and after 5-inch twin gun mountings were removed, a pair of twin 3-inch automatic weapons

substituted, and a bandstand containing a large weapon of the hedgehog type installed in place of the forward superimposed 5 inch mounting.

Photographs

Photographs of Lloyd Thomas in the 1953-54 to 1957-58 editions, of Carpenter in the 1957-58 to 1959-60 editions, of Fred T. Berry in the 1957-58 to 1962-63 editions, and of Keppler in the 1959-60 to 1963-64 editions.

Ex-DDEs (former DDKs)

Vessels were completed as such and converted from former DDs in order to form groups for the purpose of long- and short-range interception of submarines before they could attack convoys.

Destroyers (DD, ex-DDE)

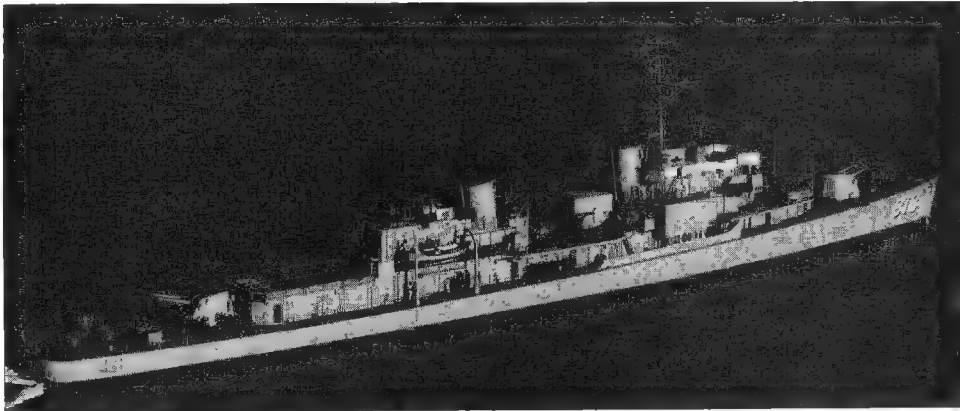
7 "Basilone" Class

1 Bath Iron Works Corpn.	4 Consolidated Steel Corpn.
847 ROBERT L. WILSON	824 BASILONE
	819 HOLDER
	818 NEW
	820 RICH

1 Bethlehem, Staten Island	1 Federal S.B. & D.D. Co.
871 DAMATO	719 EPPERSON

Displacement:	2,425 tons standard (3,500 tons full load)
Dimensions:	390½ (o.a.)×41×19 feet
Guns:	4—5 inch, 38 cal., (2 twin)
A/S weapons:	Fixed hedgehog, 6 homing torpedo tubes (2 triple)
Machinery:	Geared turbines, 2 shafts, S.H.P.: 60,000=35 kts.
Boilers:	4
Oil fuel:	650 tons
Radius:	5,800 miles at 15 kts.
Complement:	Allowance: 264 (14 officers, 250 men). Accommodation for 21 officers, 270 men

General
Builders above. Basilone and Epperson, both completed at Bath, were two long suspended units of the "Gearing" class. They were converted to ASW (for anti-submarine warfare) and completed as escort destroyers (DDE). They were armed with new weapons and equipped with improved sonar and other electronic gear. Five other units were 4-gun "Gearings" redesigned DDEs on 4 March 1950. All were again reclassified as DDs on 1 July 1962.



NEW (after conversion)

1965, United States Navy, Official

Conversion

All of this class have undergone FRAM I conversion.

Photographs

A photograph of Holder appears in the 1953-54 to 1957-58 editions, of Epperson in the 1954-55 to 1959-60 editions, of Damato, in the 1957-58 to 1959-60 editions, of Basilone in the 1959-60 to 1962-63 editions, and of Robert L. Wilson (before conversion) in the 1963-64 and 1964-65 editions.

Name	Launched	Completed
Basilone	21 Dec. 1945	21 July 1949
Damato	21 Nov. 1945	26 Apr. 1946
Epperson	22 Dec. 1945	18 Mar. 1949
Holder	25 Aug. 1945	17 May 1946
New	18 Aug. 1945	4 Apr. 1946
Rich	5 Oct. 1945	2 July 1946
Robert L. Wilson	5 Jan. 1946	28 Mar. 1946



WILLIAM R. RUSH (after FRAM I conversion)

1965, United States Navy, Official (direct from U.S.S. William R. Rush, courtesy Commanding Officer)

30 Destroyers (DD)**6 Radar Picket Destroyers (DDR)****"Frank Knox" Class**

15 Bath Iron Works Corpn. 14 Consolidated Steel Corpn.

807 BENNER	881 BORDELON
835 CHARLES P. CECIL	817 CORRY
805 CHEVALIER	874 DUNCAN (DDR)
808 DENNIS J. BUCKLEY	880 DYESS
838 ERNEST G. SMALL	882 FURSE
(DDR)	873 HAWKINS
830 EVERETT F. LARSON	875 HENRY W. TUCKER
842 FISKE	879 LEARY
742 FRANK KNOX (DDR)	883 NEWMAN K. PERRY
831 GOODRICH (DDR)	889 O'HARE
832 HANSON	877 PERKINS
833 HERBERT J. THOMAS	876 ROGERS
806 HIGBEE	888 STICKELL
829 MYLES C. FOX	878 VESOLE
743 SOUTHERLAND	4 Federal S.B. & D.D. Co.
834 TURNER (DDR)	711 EUGENE A. GREENE
	713 KENNETH D. BAILEY
	(DDR)
2 Bethlehem, Staten Island	715 WILLIAM M. WOOD
870 FECHTELER	714 WILLIAM R. RUSH
863 STEINAKER	1 Todd Pacific Shipyards
	784 McKEAN

Displacement:	2,425 tons standard (3,550 tons full load)
Dimensions:	390½ (o.a.)×41×19 feet
Guns:	6—5 inch, 38 cal. (see Gunnery)
A/S weapons	ASROC and DASH (except DDRs), 6 homing torpedo tubes (2 triple)
Machinery:	Geared turbines, 2 shafts, S.H.P.: 60,000=35 kts.
Boilers:	4
Oil fuel:	650 tons
Radius:	5,800 miles at 15 kts.
Complement:	Allowance: 275 (14 officers, 260 men). Accommodation for 20 officers, 335 men

General

Originally of the "Gearing" class. The radar located abaft No. 2 stack on the after superstructure has been removed except in the six remaining DDRs.

Radar Picket Conversion

All 36 were converted from DDs to DDRs in 1949-53 and fitted with early warning radar to serve as long range-warning picket vessels against aircraft, but only Duncan, Ernest G. Small, Frank Knox, Goodrich, Kenneth D. Bailey and Turner remain as DDRs. They underwent FRAM II conversion in Fiscal Year 1960 and 1961.

Gunnery

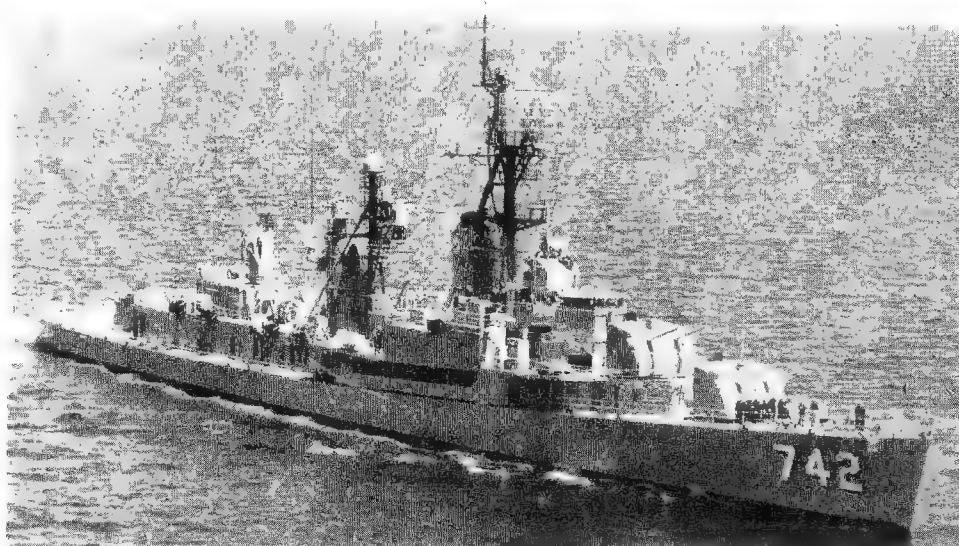
The secondary armament of six 3-inch anti-aircraft guns in three twin mountings has now been removed from all these ships.

Name	Launched	Completed
Benner	20 Nov. 1944	13 Feb. 1945
Bordelon	3 Mar. 1945	5 June 1945
Charles P. Cecil	22 Apr. 1945	29 June 1945
Chevalier	29 Oct. 1944	9 Jan. 1945
Corry	28 July 1945	26 Feb. 1946
Dennis J. Buckley	20 Dec. 1944	2 Mar. 1945
Duncan	27 Oct. 1944	25 Feb. 1945
Dyess	26 Jan. 1945	21 May 1945
Ernest G. Small	9 June 1945	21 Aug. 1945
Eugene A. Greene	18 Mar. 1945	8 June 1945
Everett F. Larson	28 Jan. 1945	6 Apr. 1945
Fechteiler	19 Sep. 1945	2 Mar. 1946
Fiske	8 Sep. 1945	28 Nov. 1945
Frank Knox	17 Sep. 1944	11 Dec. 1944
Furse	9 Mar. 1945	10 July 1945
Goodrich	25 Feb. 1945	24 Apr. 1945
Hanson	11 Mar. 1945	11 May 1945
Hawkins	7 Oct. 1944	10 Feb. 1945
Henry W. Tucker	8 Nov. 1944	12 Mar. 1945
Herbert J. Thomas	25 Mar. 1945	29 May 1945
Higbee	12 Nov. 1944	27 Jan. 1945
Kenneth D. Bailey	17 June 1945	31 July 1945
Leary	20 Jan. 1945	7 May 1945
McKean	31 Mar. 1945	9 June 1945
Myles C. Fox	13 Jan. 1945	20 Mar. 1945
Newman K. Perry	17 Mar. 1945	26 July 1945
O'Hare	22 June 1945	29 Nov. 1945
Perkins	7 Dec. 1944	5 Apr. 1945
Rogers	20 Nov. 1944	26 Mar. 1945
Southerland	5 Oct. 1944	22 Dec. 1944
Steinaker	13 Feb. 1945	26 May 1945
Stickell	16 June 1945	26 Sep. 1945
Turner	8 Apr. 1945	12 June 1945
Vesole	29 Dec. 1944	23 Apr. 1945
William M. Wood	29 July 1945	23 Nov. 1945
William R. Rush	8 July 1945	21 Sep. 1945



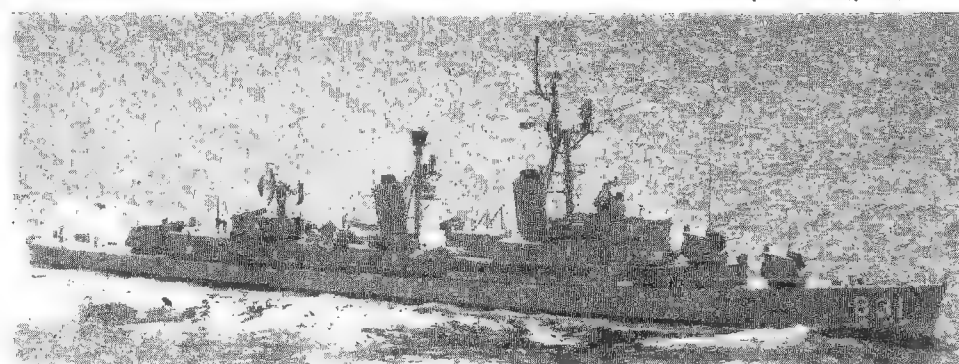
KENNETH D. BAILEY

1964, United States Navy, Official



FRANK KNOX (FRAM II)

1962, courtesy Mr. W. H. Davis



GOODRICH (after FRAM II conversion)

1962, United States Navy, Official

Appearance

All tripod radar mainmasts were removed and replaced by a new type of mainmast for "TACAN" and ECM antennae on the fore side of the after funnel.

FRAM Conversions

The six DDRs and the DDs Benner, Chevalier, Everett F. Larson and Perkins are FRAM II conversions. All the remaining 26 ships are FRAM I conversions. Equipped with DASH except DDRs. The FRAM II DDs have VDS.

Photographs

Of Vesole in the 1957-58 edition, Bordelon in the 1957-58 to 1961-62 editions, Newman K. Perry in the 1960-61 and 1961-62 editions, Fiske in the 1960-61 to 1963-64 editions, and Turner (after FRAM II conversion) in the 1962-63 to 1964-65 editions.

Reclassification

Benner, Chevalier, Everett F. Larson and Perkins were reclassified from DDR to DD in 1962 and the others (except six remaining as DDR, were reclassified as DD in 1963 and 1964 after FRAM conversions.

Destroyers—continued



GEARING

1964, United States Navy, Official (direct from U.S.S. Gearing, courtesy Commanding Officer)

Destroyers (DD)

45 "Gearing" Class

- 12 Bath Iron Works Corpn.
DD
826 AGERHOLM
845 BAUSSELL
836 GEORGE K.
MACKENZIE
840 GLENNON
841 NOA
846 OZBOURN
844 PERRY
839 POWER
849 RICHARD E.
KRAUS (ex-AG 51)(E)
837 SANSFIELD (E)
843 WARRINGTON
848 WITEK (E)

4 Bethlehem, Quincy
853 CHARLES H. ROAN
850 JOSEPH P.
KENNEDY, JR.
852 LEONARD F. MASON
851 RUPERTUS

8 Bethlehem, Staten Island
869 ARNOLD J. ISBELL
868 BROWNSON
865 CHARLES R. WARE
866 CONE
872 FORREST ROYAL
864 HAROLD J. ELLISON
867 STRIBLING
862 VOGELGESANG

1 Bethlehem, S. Francisco
763 WILLIAM C. LAWE

8 Consolidated Steel Corpn.
887 BRINKLEY BASS
884 FLOYD B. PARKS
885 JOHN R. CRAIG
821 JOHNSTON
890 MEREDITH
886 ORLECK
822 ROBERT H. MCCARD
823 SAMUEL B.
ROBERTS

4 Federal S.B. & D.D. Co.
710 GEARING
718 HAMNER
717 THEODORE E.
CHANDLER
716 WILTSIE

8 Todd Pacific Shipyards
789 EVERSOLE
783 GURKE (ex-John A.
Bole)
785 HENDERSON
788 HOLLISTER
787 JAMES E. KYES
786 RICHARD B.
ANDERSON
782 ROWAN
790 SHELTON

Displacement: 2,425 tons standard, Witek 2,465 tons (3,479 to 3,520 tons full load)
Dimensions: 390½ (o.a.) × 40½ × 19 (max.) feet
Guns: 4—5 inch, 38 cal. (two twin) (see Gunnery)
A/S weapons: DASH, ASROC, 2 triple tube launchers
Tubes: See Torpedo Armament
Machinery: Geared turbines, 2 shafts. S.H.P.: 60,000=35 kts.
Boilers: 4
Oil fuel: 650 tons
Radius: 5,800 miles at 15 kts.
Complement: Allowance: 274 (14 officers) 260 men). Accommodation for 23 officers, 340 men

General

Enlarged versions of "Allen M. Summer" type, with extra 14 feet length, necessitated by additional installations. All had tripod mast fitted to accommodate new large radar aerials. A 165 ton, 120-foot long bow section of the uncompleted destroyer Seymour O. Owens was transferred to the Ernest G. Small to replace the latter's bow section which was lost when that ship struck a mine off Songjin, Korea, 7 Oct. 1951. Similarly, the bow of the uncompleted sister ship, Lansdale, a section weighing 60 tons, was removed and welded on to Floyd B. Parks which was damaged in spring 1956 in collision with the heavy cruiser Columbus. Of this class the experimental destroyer Timmerman, AG 152, ex-EDD 828, completed to a new design (EDD) but re-designated (AG), was scrapped in 1959. Richard E. Kraus, formerly AG, was restored to DD in Jan. 1954. Cancellations: DD 809-816, 854-856, 881-926. The uncompleted Abner Read (769) and Noel (768) were scrapped.

Reconstruction

Perry, DD 844, converted for anti-submarine warfare at a cost of \$7,700,000 in Boston Naval Shipyard, was the first of the destroyers to be modernised under the FRAM Program. She lost some of her conventional armament but gained new weapons and electronic equipment. Conversion commenced on 1 May 1959 and was completed on 1 Apr. 1960. All the ships of this class, except Witek, have undergone FRAM I conversion and are equipped with DASH, ASROC launcher and two torpedo launchers in place of the old torpedo tubes.

FRAM I extends life eight years, rebuilds superstructure, rehabilitates engines and electronics, and installs ASROC. To total 79 units.

FRAM II extends life five years, installs DASH and variable depth sonar, VDS. To total 52 units.

Gunnery

"B" twin 5-inch mounting was removed from the



SAMUEL B. ROBERTS

1964, A & J. Pavia



STRIBLING (FRAM conversion, ASROC)

1962, Mr. W. H. Davis

Name				Name			
Launched		Completed		Launched		Completed	
Agerholm	30 Mar. 1946	20 June 1946		Leonard F. Mason	4 Jan. 1946	28 June 1946	
Arnold J. Isbell	6 Aug. 1945	5 Jan. 1946		Meredith	28 June 1945	31 Dec. 1945	
Bausell	19 Nov. 1945	7 Feb. 1946		Noa	30 July 1945	1 Nov. 1945	
Brinkley Bass	26 May 1945	14 Sep. 1945		Orleck	12 May 1945	15 Sep. 1954	
Charles H. Roan	7 July 1945	17 Nov. 1945		Ozbourn	22 Dec. 1945	5 Mar. 1946	
Charles R. Ware	15 Mar. 1946	12 Sep. 1946		Perry	25 Nov. 1945	17 Jan. 1946	
Cone	12 Apr. 1945	21 July 1945		Power	30 June 1945	13 Sep. 1945	
Eversole	10 May 1945	17 Aug. 1945		Richard B. Anderson	7 July 1945	28 Sep. 1945	
Floyd B. Parks	8 Jan. 1946	10 May 1946		Richard E. Kraus	2 Mar. 1946	23 May 1946	
Forrest Royal	31 Mar. 1945	31 July 1945		Robert H. McCord	9 Nov. 1945	22 Oct. 1946	
Gearing	17 Jan. 1946	28 June 1946		Rowan	29 Dec. 1945	31 Mar. 1946	
George H. McKenzie	18 Feb. 1945	3 May 1945		Rupertus	21 Sep. 1945	8 Mar. 1946	
Glennon	13 May 1945	13 July 1945		Samuel B. Roberts	30 Nov. 1945	19 Dec. 1946	
Gurke	14 July 1945	4 Oct. 1945		Sansfield	27 May 1945	31 July 1945	
Hamner	15 Feb. 1945	12 May 1945		Shelton	8 Mar. 1946	21 June 1946	
Harold J. Ellison	24 Nov. 1945	11 July 1946		Stribling	8 June 1945	29 Sep. 1945	
Henderson	14 Mar. 1945	23 June 1945		Theodore E. Chandler	20 Oct. 1945	21 Apr. 1946	
Hollister	28 May 1945	4 Aug. 1945		Vogelgesang	15 Jan. 1945	28 Apr. 1945	
James E. Kyes	9 Oct. 1945	29 Mar. 1946		Warrington	27 Sep. 1945	20 Dec. 1945	
John R. Craig	4 Aug. 1945	8 Feb. 1946		William C. Lawe	21 May 1945	18 Dec. 1946	
Johnston	14 Apr. 1945	20 Aug. 1945		Wiltzie	31 Aug. 1945	11 Jan. 1946	
Joseph P. Kennedy, Jr.	19 Oct. 1945	22 Aug. 1946		Witek	2 Feb. 1946	25 Apr. 1946	
	26 July 1945	14 Dec. 1945					

experimental destroyers Sansfield and Witek, and the after twin 5-inch mounting and the three twin 3-inch mountings were removed from the FRAM I conversions.

"B" (see Gearing above) or "Y" (see Stribling above) twin 5-inch mounting and the three twin 3-inch mountings were removed from the FRAM I conversions.

Torpedo Armament

The five 21-inch torpedo tubes were removed from the FRAM conversions.

Jet Propulsion

A new type propulsion system known as "pumpjet" was installed in Witek, EDD 848, in 1959 (see photograph in the 1960-61 to 1963-64 editions.) This device consists of two units which replace conventional propellers and make the ship quieter (see illustrations in the Addenda, page 478, 1959-60 edition)

Class

Richard E. Kraus, Sansfield and Witek are EDD (experimental destroyers). Gyatt was converted into a guided missile destroyer in 1956, see earlier page.

Photographs

Photographs of Meredith in the 1952-53 to 1957-58 editions, Charles R. Ware in the 1956-57 and 1957-58 editions, Theodore E. Chandler in the 1957-58 to 1959-60 editions, Forrest Royal in the 1959-60 edition, Floyd B. Parks in the 1957-58 to 1960-61 editions, and Agerholm in the 1961-62 to 1963-64 editions.

Disposals

The uncompleted Lansdale, DD 766, and Seymour D. Owens, DD 767 (stricken from the list on 9 June 1958) and Seaman, DD 791 (stricken in Mar. 1961) were scrapped. The uncompleted Castle, DD 720, and Woodrow R. Thompson, DD 721, were scrapped on 29 Aug. 1955.



JOHN W. THOMASON (prototype FRAM II conversion)

1960, United States Navy, Official

Destroyers (DD)
53 "Allen M. Sumner" Class

- 11 Bath Iron Works Corp.

DD

722 BARTON

730 COLLETT

732 HYMAN

727 DE HAVEN

724 LAFFEY

729 LYMAN K.

731 MADDOX

728 MANSFIELD

725 O'BRIEN

734 PURDY

723 WALKER

6 Bethlehem Steel Co.

(S. Francisco)

761 BUCK

762 HENLEY

760 JOHN W.

THOMASON

759 LOFBERG

757 PUTNAM

758 STRONG

10 Bethlehem Steel Co.

(Staten Island)

752 ALFRED A.

CUNNINGHAM

756 BEATTY

744 BLUE

745 BRUSH

754 FRANK E. EVANS

748 HARRY E.

755 JOHN A. BOLE

753 JOHN R. PIERCE

747 SAMUEL L. MOORE

746 TAUSSIG
- 4 Bethlehem Steel Co. (S. Pedro)

857 BRISTOL

776 JAMES C. OWENS

770 LOWRY

775 WILLARD KEITH

17 Federal S.B. & D.D. Co.

692 ALLEN M. SUMNER

698 AULT

704 BORIE

697 CHARLES S. SPERRY

705 COMPTON

696 ENGLISH

706 GAINARD

702 HANK

708 HARLAN R.

DICKSON

700 HAYNSWORTH

709 HUGH PURVIS

694 INGRAHAM

701 JOHN W. WEEKS

693 MOALE

707 SOLEY

699 WALDRON

703 WALLACE L. LIND

5 Todd Pacific Shipyards

779 DOUGLAS H. FOX

778 MASSEY

781 ROBERT K.

HUNTINGTON

780 STORMES

777 ZELLARS

Displacement: 2,200 tons standard (3,300 tons full load)
Dimensions: 376½×40½×19 (max.) feet
Guns: 6—5 inch, 38 cal., 6—3 inch, 50 cal. AA. (3 inch removed from FRAM conversions)
A/S weapons: 2 hedgehogs mounted on deck-house abreast bridge front, 6 homing torpedo tubes (2 triple). FRAM conversions also have 2 fixed torpedo tubes and DASH. Geared turbines. 2 shafts, S.H.P.: 60,000=33 kts.
Machinery: 4 Babcock & Wilcox, working pressure 600 lb. per sq. inch.
Boilers: 650 tons
Oil fuel: 6,000 miles at 15 kts.
Radius: Allowance: 274 (14 officers, 260 men.) Accommodation for 22 officers, 300 men

General

Had a larger radius of action than destroyers previously constructed. Type is an enlargement and modification of the "Fletcher" design. After set of tubes was removed. Collett, damaged in collision with Ammen, received replacement bow from suspended Seaman, in Aug. 1960. Twelve of this class (two scrapped) were fitted for minelaying and re-rated as DM 23-24 (see Cooper, Drexler, Mannert D. Abele, Meredith. Reconstruction

John W. Thomason, was the prototype conversion for this class under the "FRAM II" Programme. Fitted with "DASH" (drone anti-submarine helicopter) on after deck landing area, with hangar facilities, variable depth sonar (1 ton sonar dome dropped over stern) and ASW torpedo tubes. The six 3 inch guns and 5—21 inch torpedo tubes were removed.

A/S Weapons

In the unconverted ships all but one D.C. rack and all K-guns were removed and replaced by two side-launching torpedo racks.

Photographs

Photographs of Moale and Zellars (before FRAM modernisation) appear in the 1957-58 edition, of Hyman in the 1954-55 to 1958-59 editions, of Waldron in the 1958-59 and 1959-60 editions, of Charles S. Sperry in the 1959-60 and 1960-61 editions of Soley in the 1957-58 to 1962-63 editions, of Zellars (after FRAM conversion) in the 1961-62 to 1964-65 editions, and of Borie (FRAM II conversion) in the 1963-64 and 1964-65 editions.



MOALE (FRAM II conversion), fixed A/S TT amidships

Added 1965, Dr. Giorgio Arra



BEATTY (unconverted) see note below)

Added 1965, Dr. Giorgio Arra

Gunnery

In the unconverted ships the 40 mm. and 20 mm. mounts were replaced by 3-inch, 50 cal. mounts (two twin, two single).

Beatty

Note absence of 3 inch guns in "Q" and "X" positions, and ASW torpedo nests in place of 21 inch torpedo tubes.

Name	Launched	Completed	Name	Launched	Completed
*Alfred A. Cunningham	3 Aug. 1944	23 Nov. 1944	*James C. Owens	1 Oct. 1944	17 Feb. 1945
*Allen M. Sumner	15 Dec. 1943	26 Jan. 1944	*John A. Boyle	1 Nov. 1944	3 Mar. 1945
*Ault	26 Mar. 1944	31 May 1944	John R. Pierce	1 Sep. 1944	30 Dec. 1944
Barton	10 Oct. 1943	30 Dec. 1943	*John W. Thomason	30 Sep. 1944	11 Oct. 1945
Beatty	30 Nov. 1944	31 Mar. 1945	John W. Weeks	21 May 1944	21 July 1944
*Blue	28 Nov. 1943	20 Mar. 1944	*Laffey	21 Nov. 1943	8 Feb. 1944
*Borie	4 July 1944	21 Sep. 1944	*Lofberg	12 Aug. 1944	26 Apr. 1945
Bristol	29 Oct. 1944	17 Mar. 1945	*Lowry	6 Feb. 1944	23 July 1944
Brush	28 Dec. 1943	17 Apr. 1944	*Lyman K. Swenson	12 Feb. 1944	2 May 1944
*Buck	11 Mar. 1945	28 June 1946	Maddox	19 Mar. 1944	2 June 1944
*Charles H. Sperry	13 Mar. 1944	17 May 1944	*Mansfield	29 Jan. 1944	14 Apr. 1944
*Collett	5 Mar. 1944	16 May 1944	*Massey	19 Aug. 1944	24 Nov. 1944
Compton	17 Sep. 1944	4 Nov. 1944	*Moale	16 Jan. 1944	28 Feb. 1944
*De Haven	9 Jan. 1944	31 Mar. 1944	*O'Brien	8 Dec. 1943	25 Feb. 1944
Douglas H. Fox	30 Sep. 1944	26 Dec. 1944	Purdy	7 May 1944	18 July 1944
English	27 Feb. 1944	4 May 1944	*Putnam	26 Mar. 1944	12 Oct. 1944
*Frank E. Evans	3 Oct. 1944	3 Feb. 1944	*Robert K. Huntington	10 Dec. 1944	3 Mar. 1945
Gainard	17 Sep. 1944	23 Nov. 1944	Soley	8 Sep. 1944	7 Dec. 1944
Hank	21 May 1944	28 Aug. 1944	*Stormes	4 Nov. 1944	27 Jan. 1945
Harlan R. Dickson	17 Dec. 1944	17 Feb. 1945	*Strong	22 Apr. 1944	8 Mar. 1945
Harry E. Hubbard	24 Mar. 1944	22 July 1944	Samuel L. Moore	23 Feb. 1944	24 June 1944
Haynsworth	15 Apr. 1944	22 June 1944	*Tausig	25 Jan. 1944	20 May 1944
Henley	8 Apr. 1945	8 Oct. 1946	*Waldren	26 Mar. 1944	8 June 1944
*Hugh Purvis	17 Dec. 1944	1 Mar. 1945	*Walke	27 Oct. 1943	21 Jan. 1944
Hyman	8 Apr. 1944	16 June 1944	*Wallace L. Lind	14 June 1944	8 Sep. 1944
Ingraham	16 Jan. 1944	10 Mar. 1944	Willard Keith	29 Aug. 1944	27 Dec. 1944
			*Zellars	19 July 1944	25 Oct. 1944

* 33 ships FRAM II Programme Conversion (20 ships not converted).



JENKINS (after FRAM II conversion, equipped with DASH)

1962, courtesy Mr. W. H. Davis

Destroyers (DD, ex-DDE)

Former Anti-Submarine Destroyers

17 Converted "Fletcher" Class

7 Bath Iron Works Corpn.	1 Consolidated Steel Corpn., Orange, Texas
507 CONWAY	577 SPROSTON
508 CONY	
510 EATON	7 Federal S.B. & D.D. Co.
449 NICHOLAS	445 FLETCHER
450 O'BANNON	447 JENKINS
468 TAYLOR	498 PHILIP
517 WALKER	446 RADFORD
	499 RENSCHAW
	465 SAUFLEY
	466 WALLER
2 Bethlehem (Stern Island)	
470 BACHE	
471 BEALE	

Displacement:	2,080 tons standard (2,940 tons full load)
Dimensions:	376½ (o.a.)×39½×18 .feet
Guns:	2—5 inch, 38 cal. (single); 4—3 inch, 50 cal. (2 twin) (see Gunnery).
A/S weapons	1 ahead throwing rocket launcher in place of "B" turret, or trainable hedgehog, 2 torpedo tubes, 2 hedgehogs (fixed) FRAM conversions: Weapon "Alpha", 2 hedgehogs, 6 homing torpedo tubes (2 triple), DASH
Machinery:	G.E. geared turbines 2 shafts. S.H.P.: 60,000=34 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	650 tons
Radius:	6,000 miles at 15 kts.
Complement:	Allowance: 249 (14 officers, 235 men). Accommodation for 24 officers, 300 men

General
Originally orthodox fleet destroyers (DD) of the "Fletcher" class, but converted to serve as close-support convoy escorts, nine under the 1948 Programme, three under the 1949 Programme, and six under the 1950 Programme, and reclassified as DDE.

Reclassification
Again reclassified from DDE to DD on 1 July 1962.

Conversion
Jenkins, Nicholas and Radford underwent FRAM II conversion (Fleet Rehabilitation and Modernisation) in 1960, with DASH, helo deck and hangar for two drones, and ASW torpedo launchers, a nest of three on each side; and others were scheduled in 1963.

Gunnery
The 4—3 inch guns were removed from the FRAM II Programme conversions.

Disposals
Murray, DD 576, was stricken on 1 June 1965

Name	Laid down	Launched	Completed
Bache	19 Nov. 41	27 June 42	14 Nov. 42
Beale	19 Dec. 41	25 Aug. 42	23 Dec. 42
Conway	5 Nov. 41	16 Aug. 42	9 Oct. 42
Cony	24 Dec. 41	16 Aug. 42	30 Oct. 42
Eaton	17 Mar. 42	20 Sep. 42	4 Dec. 42
Fletcher	2 Oct. 41	3 May 42	30 June 42
Jenkins	22 Nov. 41	21 June 42	31 July 42
Nicholas	3 Mar. 42	19 Feb. 42	4 June 42
O'Bannon	3 Mar. 41	14 Mar. 42	26 June 42
Philip	7 May 42	13 Oct. 42	20 Nov. 42
Radford	2 Oct. 41	3 May 42	21 July 43
Renshaw	7 May 42	13 Oct. 42	4 Dec. 42
Saufley	27 Jan. 42	19 July 42	28 Aug. 42
Sproston	1 Apr. 42	31 Aug. 42	18 May 42
Taylor	28 Aug. 41	7 June 42	28 Aug. 42
Walker	31 Aug. 42	31 Jan. 43	2 Apr. 43
Waller	12 Feb. 42	15 Aug. 42	30 Sep. 42



NICHOLAS (FRAM II)

Added 1965, United States Navy, Official



NICHOLAS (after FRAM II conversion)

1961, United States Navy, Official

A/S Weapons
Fixed hedgehogs were installed on the port and starboard side of the forward shelter deck below the bridge wings.

Experimental
Saufley was equipped as an experimental destroyer, mounting 1—5 inch gun, 2—3 inch AA. guns, and no torpedo tubes, but she was decommissioned in Nov. 1944.

Sonar
Jenkins and Nicholas are fitted with variable depth sonar (VDS) on the stern.

Photographs
Photographs of Fletcher, Jenkins and Nicholas before conversion appear in the 1957-58 edition, of Cony in the 1958-59 to 1960-61 editions, of Murray in the 1957-58 to 1962-63 editions, and of Taylor in the 1963-64 and 1964-65 editions.



BLACK (four 5 inch guns)

1965, United States Navy, Official

42 Later "Fletcher" Class

- 7 Bath Iron Works Corpn.
DD
650 CAPERTON
651 COGSWELL
652 INGERSOLL
653 KNAPP
691 MERTZ
690 NORMAN SCOTT
688 REMEY
2 Bethlehem Steel Co.
(S. Francisco)
683 STOCKHAM
684 WEDDERBURN
5 Bethlehem Steel Co.
(Staten Island)
657 CHARLES
BADGER
658 COLAHAN
686 HALSEY POWELL
685 PICKING
687 UHLMANN
5 Bethlehem Steel Co.
(S. Pedro)
793 CASSIN YOUNG
681 HOPEWELL
794 IRWIN
682 PORTERFIELD
795 PRESTON
1 Boston Navy Yard
662 BENNION

2 Charleston Navy Yard
649 ALBERT W. GRANT
665 BRYANT
15 Federal S.B. & D.D. Co.
666 BLACK
660 BULLARD
667 CHAUNCEY
668 CLARENCE K.
BRONSON
669 COTTEN
659 DASHIELL
671 GATLING
672 HEALY
673 HICKOX
674 HUNT
661 KIDD
675 LEWIS HANCOCK
679 McNAIR
676 MARSHALL
680 MELVIN
3 Gulf S.B. Corpn.
654 BEARSS
655 JOHN HOOD
656 VAN VALKEN-
BURGH
2 Todd Pacific Shipyards
802 GREGORY
800 PORTER

Displacement: 2,050 tons standard (3,050 tons full load)
Dimensions: 376½ (o.a.)×39½×18 feet
Guns: 5—5 inch, 38 cal., 10—40 mm.
Converted ships: 4—5 inch, 38 cal., 6—3 inch, 50 cal. AA. (see Conversion)
Tubes: 5—21 inch (quintupled). Some (in reserve) have two sets of 5
A/S weapons: 2 Hedgehogs, 2 side-launching torpedo racks
Machinery: G.E. geared turbines, 2 shafts. S.H.P.: 60,000=34 kts.
Boilers: 4 Babcock & Wilcox
Oil fuel: 650 tons
Radius: 6,000 miles at 15 kts.
Complement: Allowance: 250 (14 officers, 236 men). Accommodation for 24 officers, 700 men

General
Laid down under the 1942 Programme. They have lower fire controls and flat-faced bridges as compared with the "Fletcher" class. War losses: Callahan, Colhoun, Little.
Conversion
Black, Caperton, Cogswell, Hopewell, John Hood, McGowan, McNair, Picking, Preston, Uhlmann and others have 4—5 inch guns (two forward and two aft), 6—3 inch, 50 cal. AA. guns (one pair superfiring aft, two pairs between the funnels), and five torpedo tubes abaft the after funnel. A 3-inch director on a tall pedestal replaced the third 5-inch gun in "Q" position. The forward torpedo bank between the funnels was suppressed. All vessels of the class have been or were scheduled to be similarly rearmed except Albert W. Grant, Bennion, Bullard, Bryant, Melvin, Mertz and Norman Scott, which are in reserve and mount their original battery.
Photographs
A large port broadside view of Caperton appears in the 1956-57 to 1960-61 editions, a starboard bow view of Cotten in the 1957-58 to 1964-65 editions, and a large starboard broadside view of Cassin Young in the 1961-62 to 1964-65 editions.
Transfers
Heywood L. Edwards, DD 663, and Richard P. Leary, DD 664, were transferred to Japan in 1959, Cushing DD 797, to Brazil in 1961. Benham, DD 796, to Peru in 1960 and Jarvis, DD 799, and McGowan, DD 768, to Spain in 1960, Dartch, DD 670, to Argentina in 1961, Rooks, DD 804, and Wadleigh, DD 689, to Chile in 1963.
Disposals
Monssen, DD798, was stricken from the list in Feb. 1963, and Mc Dermut, DD 677, on 1 Apr. 1965.



CASSIN YOUNG (five 5 inch guns)

Added 1965, United States Navy, Official



CLARENCE K. BRONSON

1957, R. M. Scott

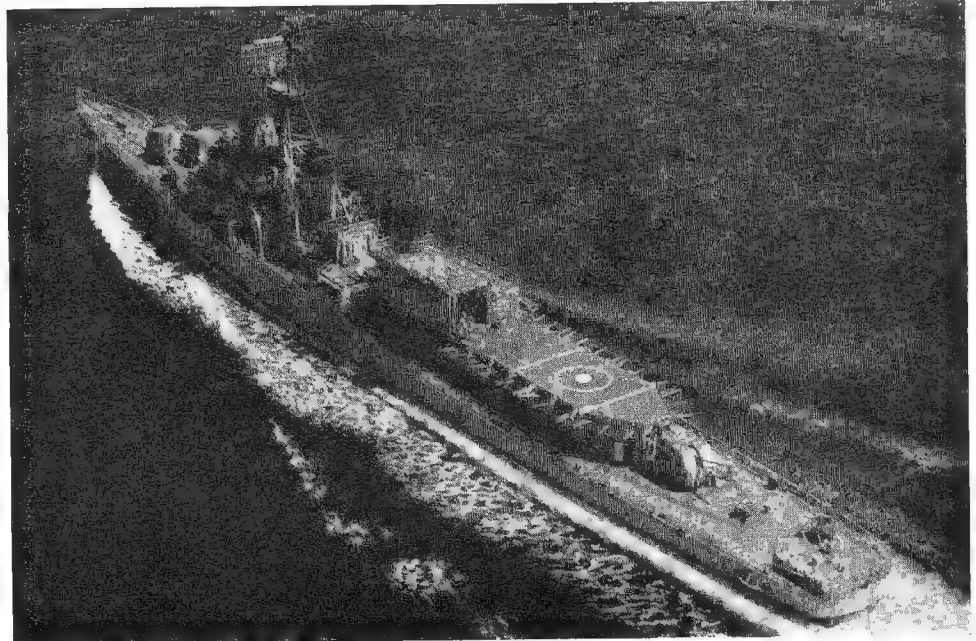
Name	Launched	Completed	Name	Launched	Completed
Albert W. Grant	29 May 1943	24 Nov. 1943	Hunt	1 Aug. 1943	22 Sep. 1943
Bearss	25 July 1943	12 Apr. 1944	Ingersoll	28 June 1943	31 Aug. 1943
Bennion	4 July 1943	14 Dec. 1943	Irwin	31 Oct. 1943	14 Feb. 1944
Black	28 Mar. 1943	21 May 1943	John Hood	23 Oct. 1943	7 June 1944
Bullard	28 Feb. 1943	9 Apr. 1943	Kidd	28 Feb. 1943	23 Apr. 1944
Bryant	29 May 1943	4 Dec. 1943	Knapp	10 July 1943	15 Sep. 1943
Caperton	24 July 1943	30 July 1943	Lewis Hancock	1 Aug. 1943	29 Sep. 1943
Cassin Young	12 Sep. 1943	31 Dec. 1943	McNair	14 Nov. 1943	30 Dec. 1943
Charles J. Badger	3 Apr. 1943	23 July 1943	Marshall	29 Aug. 1943	16 Oct. 1943
Chauncey	28 Mar. 1943	31 May 1943	Melvin	17 Oct. 1943	24 Nov. 1943
Clarence K. Bronson	18 Apr. 1943	11 June 1943	Mertz	11 Sep. 1943	19 Nov. 1943
Cogswell	5 June 1943	17 Aug. 1943	Norman Scott	28 Aug. 1943	5 Nov. 1943
Colahan	2 May 1943	23 Aug. 1943	Picking	31 May 1943	21 Sep. 1943
Cotten	12 June 1943	24 July 1943	Porter	13 Mar. 1944	24 June 1944
Dashiell	6 Feb. 1943	20 Mar. 1943	Porterfield	13 June 1943	30 Oct. 1943
Gatling	20 June 1943	19 Aug. 1943	Preston	12 Dec. 1943	20 Mar. 1944
Gregory	8 May 1944	29 July 1944	Remy	24 July 1943	30 Sep. 1943
Halsey Powell	30 June 1943	25 Oct. 1943	Stockham	25 July 1943	11 Feb. 1944
Healy	4 July 1943	3 Sep. 1943	Uhlmann	30 July 1943	22 Nov. 1943
Hickox	4 July 1943	10 Sep. 1943	Van Valkenburgh	19 Dec. 1943	2 Aug. 1944
Hopewell	2 May 1943	30 Sep. 1943	Wedderburn	1 Aug. 1943	9 Mar. 1944

51 "Fletcher" Class

DD 5 Bath Iron Works Corp.)	DD 5 Consolidated Steel Corp., Orange, Texas
629 ABBOT	573 HARRISON
630 BRAINE	574 JOHN RODGERS
511 FOOTE	575 McKEE
643 SIGOURNEY	578 WICKES
513 TERRY	580 YOUNG
11 Bethlehem (San Francisco)	3 Federal S.B. & D.D. Co.
531 HAZELWOOD	448 LA VALLETTE
534 McCORD	501 SCHROEDER
535 MILLER	502 SIGSBEE
528 MULLANY (Ex-Beatty)	Gulf S.B. Corp., Chickasaw, Ala
536 OWEN	553 JOHN D. HENLEY
538 STEPHEN POTTER	
537 THE SULLIVANS (ex-Putnam)	5 Puget Sound Navy Yard
539 TINGEY	
530 TRATHEN	480 HALFORD
540 TWINING	594 HART (ex-Mansfield)
541 YARNALL	595 METCALF
2 Bethlehem (San Pedro)	596 SHIELDS
	597 WILEY
544 BOYD	
547 COWELL	
2 Bethlehem (Staten Island)	9 Seattle-Tacoma S.B., Corp., Seattle
519 DALY	554 FRANKS
521 KIMBERLY	558 LAWS
	561 PRITCHETT
2 Boston Navy Yard	562 ROBINSON
585 HARADEN	563 ROSS
475 HUDSON	564 ROWE
	566 STODDARD
6 Charleston Navy Yard	567 WATTS
587 BELL	568 WREN
588 BURNS	
589 IZARD	
590 PAUL HAMILTON	
478 STANLEY	
479 STEVENS	

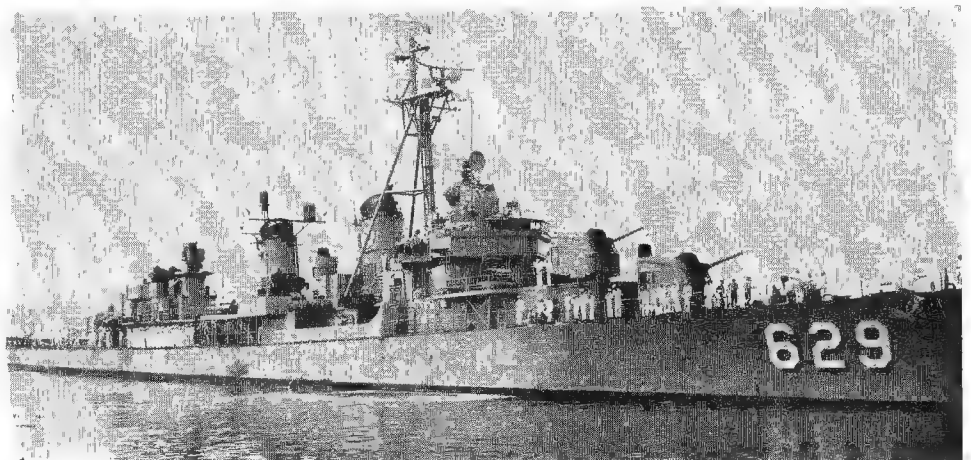
Displacement:	2,100 tons standard (3,050 tons full load)
Dimensions:	376½ (o.a.)×39½×18 feet
Guns:	5—5 inch, 38 cal. d.p., 6—40 mm. Bofors AA. (see Conversion) Rearmed ships: 4—5 inch, 38 cal., 6—3 inch, 50 cal. AA, 5—21 inch (quintupled).
Tubes:	2 fixed Hedgehogs, 2 side-launching torpedo racks (some have 6 homing torpedo tubes)
A/S weapons:	2 G.E. geared turbines, 2 shafts, S.H.P.: 60,000=34 kts.
Machinery:	4 Babcock & Wilcox
Boilers:	650 tons
Oil fuel:	6,000 miles at 15 kts.
Radius:	Allowance: 249 (14 officers, 235 men); Accommodation for 24 officers, 300 men
Complement:	

Name	Laid down	Launched	Completed
Abbot	21 Sep. 42	17 Feb. 43	23 Apr. 43
Bell	24 Feb. 42	24 June 42	4 Mar. 43
Boyd	2 Apr. 42	29 Oct. 42	8 May 43
Braine	12 Oct. 42	7 Mar. 43	11 May 43
Burns	9 May 42	8 Aug. 42	3 Apr. 43
Cowell	7 Sep. 42	18 Apr. 43	23 Aug. 43
Daly	29 Apr. 42	24 Oct. 42	9 Mar. 43
Foote	14 Apr. 42	11 Oct. 42	22 Dec. 42
Franks	8 Mar. 42	7 Dec. 42	30 July 43
Halford	3 June 41	29 Oct. 42	1 May 43
Haraden	3 June 42	19 Mar. 43	16 Sep. 43
Harrison	25 July 41	7 May 42	25 Jan. 43
Hart	10 Aug. 43	25 Sep. 44	1 Dec. 44
Hazelwood	1 Apr. 42	20 Nov. 42	18 June 43
Hudson	23 Feb. 42	3 June 42	13 Apr. 43
Izard	9 May 42	8 Aug. 42	15 May 43
John D. Henley	21 July 41	15 Nov. 42	2 Feb. 44
John Rodgers	25 July 41	7 May 42	9 Feb. 44
Kimberly	27 July 42	4 Feb. 43	22 May 43
La Vallette	27 Nov. 41	21 June 42	11 Aug. 42
Laws	19 May 42	22 Apr. 43	18 Nov. 43
Metcalfe	10 Aug. 43	25 Sep. 44	15 Dec. 44
Miller	18 Aug. 42	7 Mar. 43	31 Aug. 43
Mullany	15 Jan. 42	10 Oct. 42	23 Apr. 43
McCord	17 Mar. 42	10 Jan. 43	19 Aug. 43
McKee	2 Mar. 42	2 Aug. 42	31 Mar. 43
Owen	17 Sep. 42	21 Mar. 43	20 Sep. 43
Paul Hamilton	20 Jan. 43	7 Apr. 43	15 Nov. 43
Pritchett	20 July 42	31 July 43	15 Jan. 44
Robinson	12 Aug. 42	28 Aug. 43	31 Jan. 44
Ross	7 Sep. 42	10 Sep. 43	21 Feb. 44
Rowe	7 Dec. 42	30 Sep. 43	13 Mar. 44
Schroeder	25 June 42	11 Nov. 42	31 Dec. 42
Shields	10 Aug. 43	25 Sep. 44	22 Feb. 45
Sigourney	7 Dec. 42	24 Apr. 43	29 June 43
Sigsbee	22 July 42	7 Dec. 42	22 Jan. 43
Stanley	30 Dec. 41	2 May 42	15 Oct. 42
Stephen Potter	27 Oct. 42	28 Apr. 43	21 Oct. 43
Stevens	30 Dec. 41	24 June 42	1 Feb. 43
Stoddard	10 Mar. 43	19 Nov. 43	15 Apr. 44
Terry	8 June 42	22 Nov. 42	26 Jan. 43
The Sullivans	10 Oct. 42	4 Apr. 43	30 Sep. 43
Tingey	22 Oct. 42	28 May 43	25 Nov. 43
Trathen	18 July 42	22 Oct. 42	28 May 43
Twining	20 Nov. 42	11 July 43	1 Dec. 43
Watts	26 Mar. 43	31 Dec. 43	29 Apr. 44
Wickes	15 Apr. 42	13 Sep. 42	16 June 43
Wiley	10 Aug. 43	25 Sep. 44	14 Mar. 45
Wren	24 Apr. 43	29 Jan. 44	20 May 44
Yarnall	5 Dec. 42	25 July 43	30 Dec. 43
Young	7 May 42	11 Oct. 42	31 July 43



HAZELWOOD (as converted with helicopter hangar and flight deck aft)

1960, "Our Navy"



ABBOT

May 1964, Philadelphia, courtesy Dr. Ian S. Pearsall

General

Laid down under the 1940-41 Programme. Builders above. During the war six units (including Halford in 1943) were experimentally fitted with a seaplane and catapult, in place of deckhouse between "Q" and "X" turrets (armament being temporarily reduced by 1—5 inch gun and 5 torpedo tubes); and some, including Young, had only one set of tubes. All those with two sets now reduced to one. Eighteen of these ships were modified for duty as escort destroyers (DDE), viz: Bache, Beale, Conway, Cony, Eaton, Fletcher, Jenkins, Murray, Nicholas, O'Bannon, Philip, Radford, Renshaw, Saufley, Sproston, Taylor, Walker and Waller—see previous page. War losses: Abner Reed, Brownson, Bush, Chevalier, De Haven, Halligan, Hoel, Johnston, Longshaw, Luce, Morrison, Pringle, Spence, Strong, Twigg, William D. Porter. Heavily damaged and subsequently scrapped: Evans, Haggard, Leutze, Newcomb, Thatcher. Sold: Hutchins. Cancelled: Percival, Watson.

Helicopter Operation

Hazelwood, DD531, has a helicopter flight deck in place of her torpedo tubes, after twin 40 mm. gun mountings, and "X" 5 inch gun, with small hangar on the port side abaft the funnels. She operates radio controlled ASW drone helicopters which release ASW weapons by remote control (see photograph above).

Photographs

A large starboard quarter aerial view of Boyd appears in the 1957-58 edition, a port quarter oblique aerial view of Twining in the 1957-58 to 1959-60 editions, a port bow aerial view of Ross in the 1954-55 to 1957-58 editions, a starboard broadside view of Daly in the 1956-57 to 1960-61 editions, a large port oblique aerial view of Rowe in the 1957-59 to 1961-62 editions, and a port bow oblique aerial view of Watts in the 1957-58 to 1963-64 editions.

Experimental

Fullam, DD 474 and Howarth, DD 592 (now sunk, see Disposals), and Killen, DD 593, now stricken, were trial ships in the 1958 atomic weapons tests. Fullam was used as a test hull by Norfolk Naval Shipyard

during 1960-62 to determine the effects of underwater explosions.

Conversion

Boyd, Cowell, Daly, Isherwood, Halley, Mullany, Ross, Rowe, Smalley and others have four 5-inch (in "A", "B", "X" and "Y" positions), six 3 inch (twin mount in "Q" position, and two twins amidships between funnels), five 21 inch torpedo tubes (quintuple bank abaft the after funnel) and tripod mast. The forward bank of tubes were suppressed (3 inch now mounted in their place). All active units were rearmed, but over half the class are in reserve and mount their original armament. Hazelwood was converted with a flight deck and hangar to operate helicopters (see Helicopter Operation in previous column.)

Appearance

All the ships of this class built by the Bethlehem Steel Co. have flat-sided funnels.

Transfers

Of this class, Anthony, DD 515, was transferred to the German Federal Republic in 1957. Capps, DD 550, and David W. Taylor, DD 551, were loaned to Spain in 1957 for five years (renewed in 1962). Aulick, DD 569, Charette, DD 581, and Conner, DD 508 were transferred to Greece in 1959. Converse, DD 509, to Spain in 1959. Bennett, DD 473, and Guest, DD 472, to Brazil in 1959. Charles Ausburn, DD 570, Claxton, DD 571, Dyson, DD 572, Ringgold, DD 500, and Wadsworth, DD 516, to the German Federal Republic in 1958-60. Hall, DD 583, to Greece on 9 Feb. 1960. Halley, DD 556, to Brazil in 1961. Hale, DD 642, to Columbia in 1961. Heerman, DD 532, and Stembel, DD 644, to Argentina on 1 Aug. 1961. Isherwood, DD 520 to Peru on 8 Oct. 1961. Bradford, DD 545, and Brown, DD 546, to Greece on 28 Sep. 1962. Erben, DD 631, to Korea in May 1963.

Disposals

Ammen, DD 527, was stricken from the Navy List after major collision damage in 1960. Howarth, DD 592, was stricken on 1 June, 1961 and sunk by torpedoes off San Diego on 8 Mar. 1962. Fullam, DD 474, was sunk as a target ship by ships and aircraft on 7 July 1962 off Cape Henry, Virginia. Killen, DD 593 was stricken in Jan. 1963 to be disposed of as a target. Smalley, DD 565, was stricken on 1 Apr. 1965,



THOMPSON.

Added 1957, Ted Stone

35 "Gleaves-Livermore" Class (including Ex-Destroyer Minesweepers)

38th Iron Works Corpn.	11 Federal S.B. & DD. Co.
DD	DD
423 GLEAVES	618 DAVISON
424 NIBLACK	439 EDISON
437 WOOLSEY	619 EDWARDS
	440 ERICSSON
6 Boston Navy Yard	455 HAMBLETON
632 COWIE	621 JEFFERS
634 DORAN	432 KEARNEY
635 EARLE	623 NELSON
462 FITCH	645 STEVENSON
633 KNIGHT	646 STOCKTON
441 WILKES	647 THORN
3 Charleston Navy Yard	10 Seattle-Tacoma S.B.
435 GRAYSON	Corpn., Seattle.
443 SWANSON	493 CARMICK
641 TILLMAN	494 DOYLE
	495 ENDICOTT
1 Norfolk Navy Yard	497 FRANKFORD
638 HERNDON	496 MCCOOK
	489 MERVINE
1 Philadelphia Navy Yard	490 QUICK
637 GHERARDI	626 SATTERLEE
	627 THOMPSON
	628 WELLES

Displacement:	1,700 tons standard (2,580 tons full load)
Dimensions:	341 (w.l.), 348½ (o.a.)×36×18 feet
Guns:	4—5 inch, 38 cal., 4—40 mm.
Tubes:	5—21 inch (quintupled)
Machinery:	G.E. geared turbines 2 shafts. S.H.P.: 50,000=34 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	600 tons
Radius:	5,000 miles at 15 kts.
Complement:	240 (Accommodation for 21 officers, 270 men)

General

Butler, DMS 29, Forrest, DMS 24, and Harding, DMS 28, were scrapped. Hobson, DMS 26, sank in mid-Atlantic on 27 Apr. 1952, after collision with the aircraft carrier Wasp during a night exercise. All the remaining ships of this class are out of commission in reserve.

Name	Laid down	Launched	Completed
Carmick	29 May 41	8 Mar. 42	28 Dec. 42
Cowie	18 Mar. 41	27 Sep. 41	1 June 43
Davison	26 Feb. 42	19 July 42	11 Sep. 42
Doran	14 June 41	10 Dec. 41	4 Aug. 42
Doyle	29 May 41	17 Mar. 42	27 Jan. 43
Earle	14 June 41	10 Dec. 41	1 Sep. 42
Edison	18 Mar. 40	23 Nov. 40	30 Jan. 41
Edwards	26 Feb. 42	19 July 42	17 Sep. 42
Endicott	1 May 41	5 Apr. 42	25 Feb. 43
Ericsson	18 Mar. 40	23 Nov. 40	11 Mar. 41
Fitch	6 Jan. 41	14 June 41	3 Feb. 43
Frankford	5 June 41	17 May 42	31 Mar. 42
Gherardi	16 Sep. 41	12 Feb. 42	15 Sep. 42
Gleaves	16 May 38	9 Dec. 39	May 40
Grayson	17 July 39	7 Aug. 40	15 Apr. 41
Hambleton	16 Dec. 40	26 Sep. 41	22 Dec. 41
Herndon	26 Aug. 41	5 Feb. 42	20 Dec. 42
Jeffers	25 Mar. 42	26 Aug. 42	4 Nov. 42
Kearney	1 Mar. 39	9 Mar. 40	13 Sep. 40
Knight	18 Mar. 41	27 Sep. 41	23 June 42
Mccook	1 May 41	3 May 42	15 Mar. 43
Mervine	3 Nov. 41	3 May 42	16 June 42
Nelson	7 May 42	15 Sep. 42	25 Nov. 42
Niblack	8 Aug. 38	18 May 40	1 Aug. 40
Quick	3 Nov. 41	3 May 42	2 July 42
Satterlee	10 Sep. 41	17 July 42	1 July 43
Stevenson	23 July 42	11 Nov. 42	14 Dec. 42
Stockton	24 July 42	11 Nov. 42	9 Jan. 43
Swanson	15 Nov. 39	2 Nov. 40	15 July 41
Thompson	22 Sep. 41	10 Aug. 42	10 July 43
Thorn	15 Nov. 42	28 Feb. 43	31 Mar. 43
Tillman	8 Sep. 41	20 Dec. 41	4 June 42
Welles	27 Sep. 41	7 Sep. 42	16 Aug. 43
Wilkes	1 Nov. 39	31 May 40	12 June 41
Woolsey	9 Oct. 39	12 Feb. 40	7 May 41



CARMICK

Added 1965, United States Navy, Official



GHERARDI (showing sweeping gear)

Added 1959, A. & J. Pavia

Gunnery

The armament of the former Destroyer Minesweepers (DMS) comprises 3—5 inch, 38 cal.; 4—40 mm. AA.; and 4 to 5—20 mm. AA.

Reclassification

Doyle, Jeffers, Hambleton and Rodman, formerly high speed minesweepers DMS 34, DMS 27, DMS 20 and DMS 21, respectively, were reclassified as destroyers on 15 Jan. 1955. Carmick, Cowie, Davison, Doran, Earle, Endicott, Fitch, Gherardi, Knight, McCook, Mervine, Quick and Thompson, formerly Destroyer Minesweepers DMS 33, DMS 39, DMS 37, DMS 41, DMS 42, DMS 35, DMS 25, DMS 30, DMS 40, DMS 36, DMS 31, DMS 32 and DMS 38, respectively, reverted to Destroyer (DD) status on 15 July 1955.

Appearance

The Seattle-built ships of this class have square-faced bridges with director on the bridge instead of mounted on a pedestal.

Second World War losses: Aaron Ward, Beatty, Bristol, Carry, Emmons, Duncan, Glennon, Gwin, Ingraham, Maddox, Meredith, Manssen, Turner, Shubrick was so badly damaged that she was scrapped.

Photographs

A broadside silhouette photograph of Fitch (as DMS) and a port bow aerial view of Woolsey (as DD) appear in the 1950-51 to 1957-58 editions, a starboard bow view of Gleaves appears in the 1962-63 edition, a port bow view of Gherardi in the 1951-52 to 1964-65 editions, and a port broadside view of Fitch in the 1963-64 and 1964-65 editions.

Transfers

Buchanan, DD 484, and McCalla, DD 488, transferred to Turkey in 1949 and Lansdowne, DD 486, and DD 487, in 1950, Eberle, DD 430 and Ludlow, DD 438, to Greece in 1951. Nicholson, DD 442, to Italy in 1951, Ellyson and Macomb, DMS 19 and DMS 23, reclassified DD 454 and DD 458 in May 1954, sent to Japan in Oct. 1954, Rodman, DD 456, transferred to Taiwan China on 28 July 1955 and Plunkett, DD 431, on 16 Feb. 1959.

Disposals

Livermore, DD 429, was stricken from the Navy List on 19 July 1956, and expended in tests during 1957-58. Baldwin, DD 624, was stricken on 1 June 1961 (she went adrift on 15 Apr. 1961, while under tow, grounded off Montauk Point, Long Island, on 16 Apr. 1961, was salvaged on 4 June 1961 and scuttled on 5 June 1961).

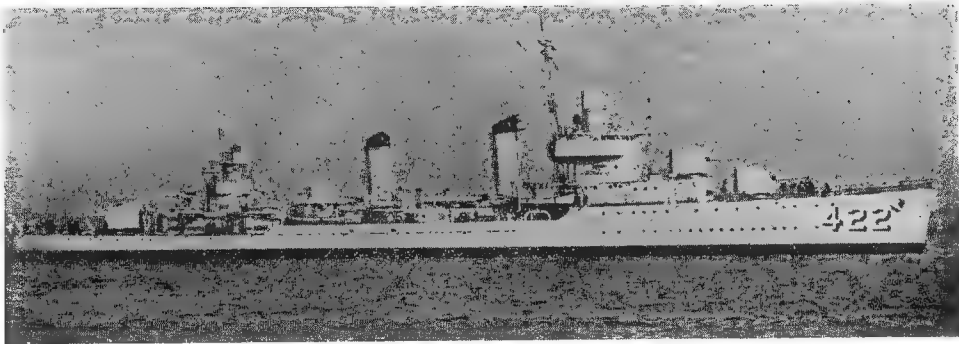
Destroyers—continued

23 "Benson-Mayo" Class

6 Bethlehem (Quincy)	4 Bethlehem (S. Pedro)
DD	
598 BANCROFT	612 KENDRICK
600 BOYLE	613 LAUB
601 CHAMPLIN	614 MACKENZIE
422 MAYO	615 McLANAHAN
616 NIELDS	
617 ORDONAU	5 Bethlehem (Staten Island)
	492 BAILEY
	491 FARENHOLT
6 Bethlehem (S. Francisco)	602 MEADE
DD	603 MURPHY
606 COGHLAN	604 PARKER
607 FRAZIER	
608 GANGSEVOORT	1 Boston Navy Yard
609 GILLESPIE	425 MADISON
610 HOBBS	
611 KALK	1 Puget Sound Navy Yard
	428 CHARLES F. HUGHES

Displacement:	1,620 tons standard (2,575 tons full load)
Dimensions:	348½ (o.a.)×35½×18 feet
Guns:	4—5 inch, 38 cal., 4—40 mm. AA.; 7—20 mm. AA.
Tubes:	5—21 inch (quintupled)
Machinery:	Geared turbines, 2 shafts. S.H.P.: 50,000=34 kts.
Boilers:	4 high pressure
Oil fuel:	600 tons
Radius:	5,000 miles at 15 kts.
Complement:	230 (Accommodation for 17 officers, 280 men)

Name	Laid down	Launched	Completed
Bailey	29 Jan. 41	19 Dec. 41	11 May 42
Bancroft	20 May 41	31 Dec. 41	30 Apr. 42
Boyle	31 Dec. 41	15 June 42	15 Aug. 42
Champlin	31 Jan. 42	25 July 42	12 Sep. 42
Charles F. Hughes	3 Jan. 39	16 May 40	18 Oct. 40
Coghlán	28 Mar. 41	16 Feb. 42	10 July 42
Farenholt	11 Dec. 40	19 Nov. 41	2 Apr. 42
Frazier	5 July 41	17 Mar. 42	30 July 42
Gansevoort	16 June 41	11 Apr. 42	25 Aug. 42
Gillespie	16 June 41	8 May 42	16 Sep. 42
Hobbs	30 June 41	4 June 42	18 Nov. 42
Kalk	30 June 41	18 July 42	17 Oct. 42
Kendrick	1 May 41	2 Apr. 42	12 Sep. 42
Laub	1 May 41	1 June 42	24 Oct. 42
McLanahan	29 May 41	7 Sep. 42	19 Dec. 42
Mackenzie	1 May 41	27 June 42	21 Nov. 42
Madison	19 Dec. 38	20 Oct. 39	6 Dec. 40
Mayo	16 May 38	26 Mar. 40	18 Sep. 40
Meade	25 Mar. 41	15 Feb. 42	22 June 42
Murphy	19 May 41	29 Apr. 42	25 July 42
Nields	15 June 42	1 Oct. 42	15 Jan. 43
Ordonaux	25 July 42	9 Nov. 42	13 Feb. 43
Parker	9 June 41	12 May 42	29 Aug. 42



MAYO (original appearance)

Added 1965, United States Navy, Official



CALDWELL

1951, U.S. Navy, Official

General
Built to the design of Bethlehem Steel Co. War losses: Barton, Laffey, Lonsdale. All of this class are out of commission, in reserve.

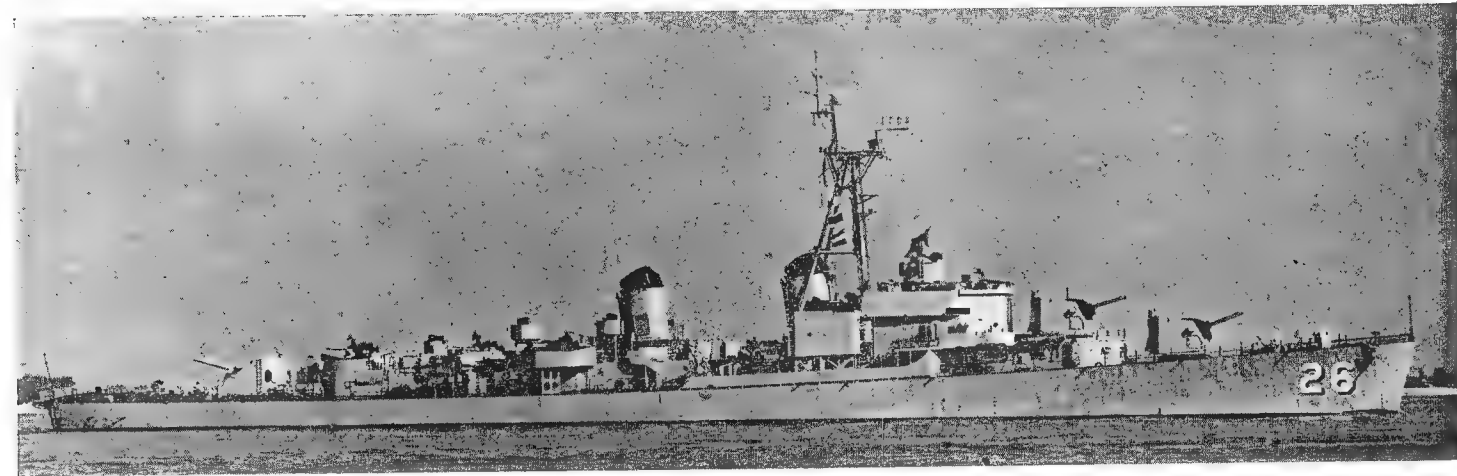
Appearance
All ships of the class have flat-sided funnels. Some still have 10 torpedo tubes. Others have none.

Transfers
Woodworth, DD 460, was transferred to Italy in 1951. Benson, DD 421, and Hilary P. Jones, DD 427 were transferred to Taiwan China in 1954.

Rescinded Conversion
Two destroyers of this class were to have been converted to Corvettes (DDC) as prototypes for the conversion of the "Gleaves" and "Mayo" classes, Conversion plans provided for the removal of two boilers and the addition of a new sonar installation. But the conversions were rescinded.

Disposals
Of this class Caldwell, DD 605, was stricken on 1 May 1965. The old destroyer Winslow, AG 127 (ex-DD 359), of the "Selfridge" class, modified for radar picket and experimental ordnance testing, was stricken in Jan. 1958.

DESTROYER MINELAYERS (DM) Ex-Destroyers (DD)



HARRY F. BAUER

Added 1957, U.S. Navy, Official

—10 "Smith" Class

Modified "Allen M. Sumner" Class

DM	DM
27 ADAMS (ex-DD 739)	23 ROBERT H. SMITH (ex-DD 735)
33 GWIN (ex-DD 772)	25 SHANNON (ex-DD 737)
26 HARRY F. BAUER (ex-DD 738)	30 SHEA (ex-DD 750)
29 HENRY A. WILEY (ex-DD 749)	24 THOMAS E. FRASER (ex-DD 736)
32 LINDSEY (ex-DD 771)	28 TOLMAN (ex-DD 740)

General
Modified Destroyers of the "Allen M. Sumner" class. Later fitted with tripod masts. All out of commission, in reserve.

Reclassification
Formerly classified as Light Minelayers (DM). Re-classified as Destroyer Minelayers (DM.) in Feb. 1955.

Displacement:	2,250 tons standard (3,375 tons full load)
Dimensions:	376½×41½×19 (max.) feet
Guns:	6—5 inch, 38 cal., 12—40 mm. AA., 11—20 mm. AA., (some were rearmed with 6—3 inch, 50 cal. in place of 40 mm.)
Mines:	80 (capacity)
Machinery:	Geared turbines, 2 shafts. S.H.P.: 60,000 = 34 kts.
Boilers:	4 Babcock & Wilcox
Oil fuel:	650 tons
Radius:	6,000 miles at 15 kts.
Complement:	275 (15 officers, 260 men). Accommodation for 22 officers, 300 men

Building
DM 23-28 were built by Bath Iron Works, DM 29-30 by Bethlehem Steel Co., Staten Island, N.Y., and DM 32-33 by Bethlehem Steel Co., San Pedro, California.

Photograph
A port broadside view of Gwin appears in the 1956-57 to 1960-61 editions.

Disposals
J. Wm. Ditter, DM 31, and Aaron Ward, DM 24 were scrapped.

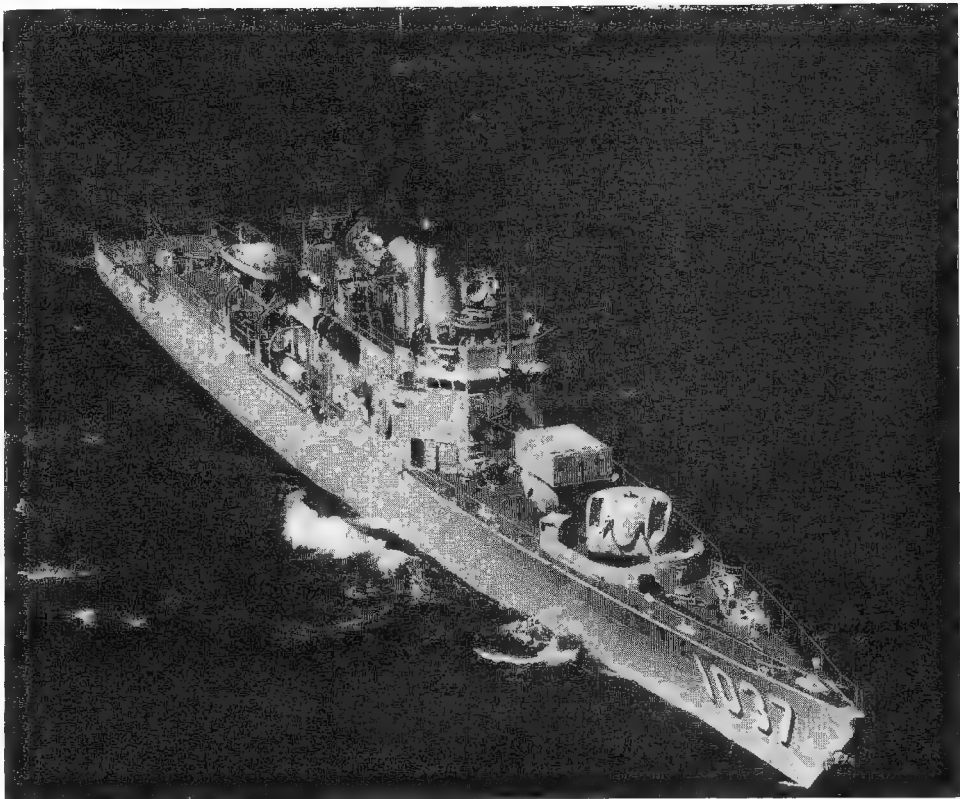
Name	Launched	Completed
Adams	23 July 1944	10 Oct. 1944
Gwin	9 Apr. 1944	30 Sep. 1944
Harry F. Bauer	9 July 1944	22 Sep. 1944
Henry A. Wiley	21 Apr. 1944	31 Aug. 1944
Lindsey	5 Mar. 1944	20 Aug. 1944
Robert H. Smith	25 May 1944	4 Aug. 1944
Shannon	24 June 1944	8 Sep. 1944
Shea	20 May 1944	30 Sep. 1944
Thomas E. Fraser	10 June 1944	22 Aug. 1944
Tolman	13 Aug. 1944	27 Oct. 1944

GUIDED MISSILE ESCORT SHIPS (DEG)

6 New Construction

3 Puget Sound B. & D.D. Co.	3 Bath Iron Works Corpn.
DEG 1 BROOKE	DEG 4 TALBOT
DEG 2 RAMSEY	DEG 5 RICHARD L. PAGE
DEG 3 SCHOFIELD	DEG 6
Displacement:	2,643 tons standard (3,426 tons full load)
Dimensions:	414½ (o.a.)×44×18 feet
Guided weapons:	1 single launcher aft for "Tartar" surface-to-air missiles
Guns:	1—5 inch, 38 cal. forward
A/S weapons:	ASROC 8-tube launcher forward, 2 triple ASW torpedo launchers amidships, facilities for ASW helicopter, DASH
Machinery:	Geared steam turbines, 1 shaft. S.H.P.: 35,000—27 kts.
Boilers:	2 Foster Wheeler new super-charged steam generators
Complement:	248

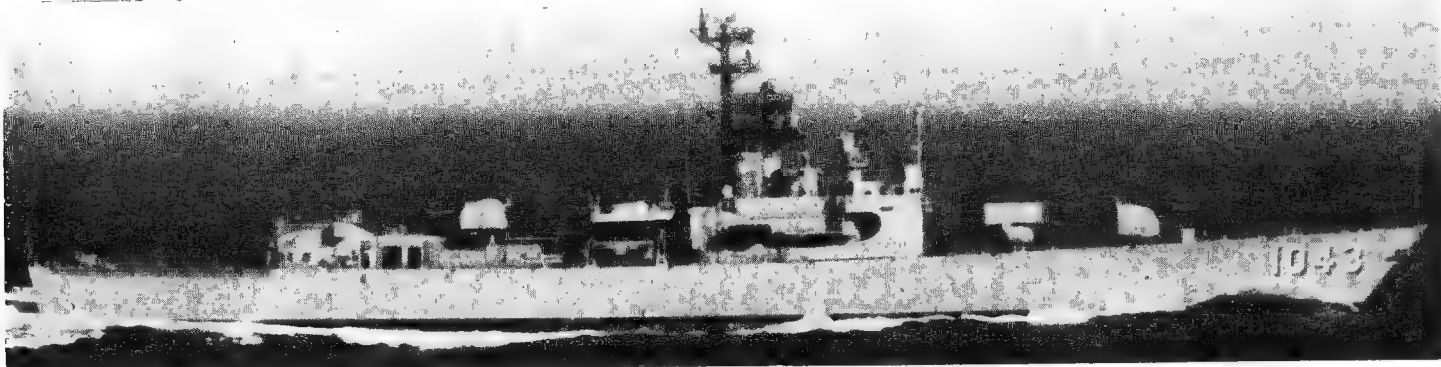
General
The first small ships of the destroyers escort type ever designed to carry guided missiles. Brooke was laid down on 19 Dec. 1962 and launched on 19 July 1963. Ramsey was laid down on 4 Feb. 1963 and launched on 15 Oct. 1963. Schofield was laid down on 15 Apr. 1963 and launched on 7 Dec. 1963. All authorised in the Fiscal Year 1962 New Construction Programme.
The newly developed steam generators are only half the weight of conventional boilers of the same capacity. They permit greater speeds or increased cruising ranges without increasing the hull size of the ships. Same hull design and machinery plant as the latest three conventionally armed escort ships of the "DE 1040" class (see following): Combined "macks" instead of masts and stacks. Cost \$28,500,000.
Talbot was laid down on 4 May 1964, Richard L. Page on 4 Jan 1965 and DEG 6 on 12 July 1965. Talbot was launched on 29 May 1965. All authorised in the Fiscal Year 1963 New Construction Programme. Cost \$30,100,000.
Fitted with a modified "Tartar" installation (44 missiles) and integral bow mounted sonar.
Two DEGs were requested by the Navy in the Fiscal Year 1964 New Construction Programme, but they were not authorised.



BRONSTEIN (see next page)

1965, United States Navy, Official

ESCORT SHIPS New Large Anti-Submarine Type (DE)

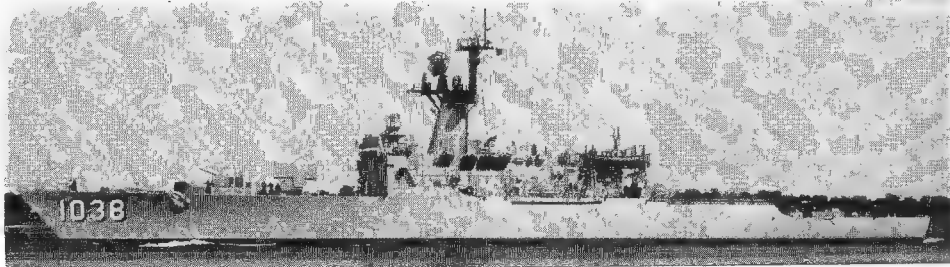


EDWARD McDONNELL

1965, United States Navy, Official

20+26 New Construction

10 Avondale Shipyards, Inc., 7 Puget Sound B. & D.D. Westwego, La.	Co.
DE 1043 EDWARD McDONNELL	DE 1048 SAMPLE
1044 BRUMBY	1050 ALBERT DAVID
1045 DAVIDSON	1057
1056	1963
1059	1065
1061	1069
1068	1073
1072	7 Todd, San Pedro
1075	1058
1077	1060
	1067
2 Bethlehem Steel, San Francisco	1070
	1071
	1074
1040 GARCIA	1076
1041 BRADLEY	7 Todd, Seattle
	1052 KNOX
3 Defoe S.B. Co., Bay City	1053
1047 VOGUE	1054
1049 KOELSCH	1055
1051 O'CALLAHAN	1062
	1064
	1066
Displacement:	2,624 tons standard (3,403 tons full load) 26 later 4,100 tons
Dimensions:	414½ (o.a.)×44×18 feet, 26 later ships 438×47 feet
Guns:	2—5 inch, 38 cal. (single), one forward, one aft



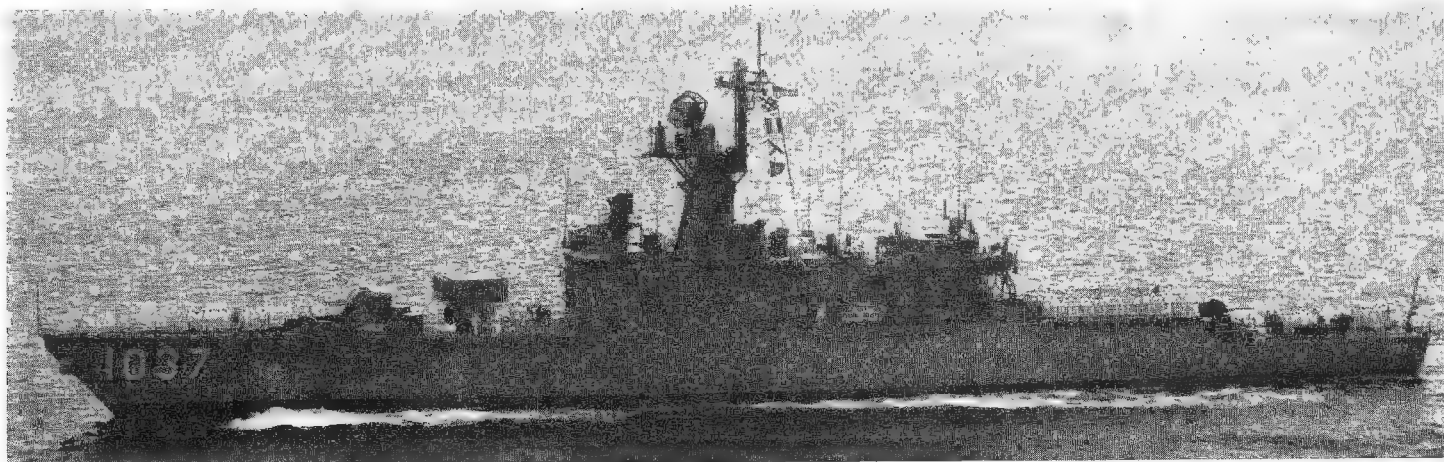
McCLOY (see next page)

1965, United States Navy, Official

A/S weapons: ASROC, DASH, 6 homing torpedo tubes (2 triple)
Machinery: Westinghouse geared turbines, 1 shaft. S.H.P.: 35,000—27 kts.
Boilers: Newly developed pressure fired
Complement: 247
General
Garcia and Bradley were built under the 1961 Programme, and Edward McDonnell, Brumby and Davidson under the 1962 Programme. Cost \$26,700,000. Albert David, Koelsch, Sample, Voge and O'Callahan were authorised in the 1963 Programme. Garcia was laid down on 16 Oct. 1962. Bradley on 17 Jan. 1963. Edward McDonnell on 1 Apr. 1963. Brumby on 1 Aug. 1963. Davidson on 30 Sep. 1963. Voge on 21 Nov. 1963. Sample on 19 July 1963. Koelsch on 19 Feb. 1964. Albert David on 29 Apr. 1964 and O'Callahan

on 19 Feb. 1964. Garcia was launched on 31 Oct. 1963. Edward McDonnell on 15 Feb. 1964. Bradley on 26 Mar. 1964. Sample on 28 Apr. 1964. Brumby on 6 June 1964. Davidson on 2 Oct. 1964. Albert David on 19 Dec. 1964. Koelsch on 8 June 1965. Garcia was commissioned on 21 Dec. 1964, and Bradley on 15 May 1965. Ten more DEs were in the FY 1964 new construction programme, 16 in the 1965 programme, and ten in the 1966 programme.
Designed for optimum performances in locating and destroying submarines. They carry the integral bow mounted long range sonar, variable depth sonar, and gyro stabilisers. Improved seaworthiness plus significantly increased anti-submarine warfare capabilities over previous DEs. Flush deck, and radically raked stem. Combined mast and stack or "mack". Intended Sea Mauler missile launcher suppressed.

DESTROYER ESCORTS (DE)



BRONSTEIN

1964, United States Navy, Official

2 "Bronstein" Class

2 Avondale Shipyards Incorporated, Westwego, Louisiana.

DE	DE
1037 BRONSTEIN	1038 McCLOY
Displacement:	1,890 tons standard (2,650 tons full load)
Dimensions:	317½ (o.a.)×40½×18 feet

Guns:	3—3 inch, 50 cal., (twin forward in gunhouse, single aft)
A/S weapons:	Rocket launcher (ASROC), 2 triple ASW torpedo launchers amidships
Aircraft:	Drone anti-submarine helicopter (DASH) carrying ASW torpedoes
Machinery:	Steam turbines=26 kts.
Boiler:	Foster-Wheeler supercharged
Complement:	220

General

An entirely new ocean convoy (anti-submarine) type. Built under the Fiscal Year 1960 Programme. Light displacement 1,640 tons. DE Nos. 1039, 1042 and 1046 were assigned to ships built under the off-shore Programme for Portugal.

Name	Laid down	Launched	Completed
Bronstein	16 May 61	31 Mar. 62	10 June 1963
McCloy	15 Sep. 61	9 June 62	19 Oct. 1963

4 "Claud Jones" Class

4 Avondale Marine Ways, Inc., New Orleans, Louisiana

DE	DE
1035 CHARLES BERRY	1033 CLAUD JONES
1036 McMORRIS	1034 JOHN R. PERRY
Displacement:	1,450 tons standard (1,750 tons full load)
Dimensions:	312 (o.a.)×39×14½ feet
Guns:	2—3 inch, 50 cal. d.p. AA. with forward 3 inch in gunhouse
A/S weapons:	2 hedgehog launchers forward, 6 torpedo tubes (2 triple)
Machinery:	4 F.M. diesels with reduction drive, 1 shaft. Speed=21 kts.
Complement:	175



CLAUD JONES

Added 1964, United States Navy, Official

General

Claud Jones and John R. Perry were provided under the 1956 fiscal year appropriations and Charles Berry and McMorris under the 1957 programme. The latter two, originally ordered from American S.B. Co., Lorain, Ohio, were completed by Avondale Marine Ways. They embody new features including a unique upper deck arrangement, aluminium masts and deckhouse. Cruising range of 7,000 miles. Light displacement 1,315 tons.

Engineering

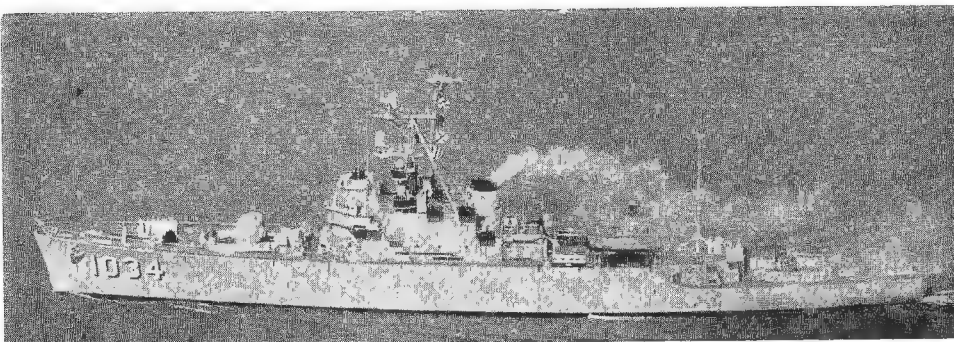
These ships have diesel propelling machinery, which cost less and have increased endurance, and two funnels instead of one as in the "Dealey" type.

Anti-Submarine Warfare

Charles Berry and McMorris were fitted with Norwegian designed "Terne III" anti-submarine missile launchers and system in 1961 at Long Beach Naval Shipyard (removed in 1964).

Photographs

A port quarter oblique aerial view of Claud Jones appears in the 1959-60 and 1960-61 editions, and a port bow surface view in the 1964-65 edition.



JOHN R. PERRY

1961, United States Navy, Official

Name	Laid down	Launched	Completed
Claud Jones	1 June 57	27 May 58	10 Feb. 59
John R. Perry	1 Oct. 57	29 July 58	5 May 59
Charles Berry	29 Oct. 58	17 Mar. 59	25 Nov. 59
McMorris	5 Nov. 58	26 May 59	4 Mar. 60

Classification of DEs

Former Destroyer Escorts are now officially grouped under the generic heading of Patrol Ships with the specific classification of Escort Ships, but they approximate to the Frigate category in other navies.

Design Project

Bethlehem Steel Company, Quincy, and Gibbs and Cox, Inc., New York City, each prepared for the U.S. Navy a preliminary design for an advanced anti-submarine escort ship.

ESCORT RESEARCH SHIP (AGDE)

1 New Construction

AGDE 1 GLOYER (ex-AG 163)

Builders:	Bath Iron Works
Laid down:	29 July 1963
Launched:	17 Apr. 1965
Displacement:	3,426 tons (officially revised figure)
Dimensions:	414×44 feet
A/S weapons:	ASROC and DASH
Boiler:	Newly developed pressure fired

General

An experimental hull of advanced hydrodynamic and propulsion design. To be used to obtain data for determining the optimum configuration for mounting sonar for best performance, and hydrodynamic and self-noise information unobtainable from model tests. Her radical propulsion system will consist of counter-rotating propellers emerging from an electric motor nacelle at the stern to reduce cavitation. It is expected that under normal search conditions it will be virtually free from

propeller noises. A long range moulded plastic sonar dome is built into the stem, and a variable depth sonar installation housed in the bottom of the ship. With this combination she is expected to be able to detect and track a submarine at great distances, regardless of its depth. Gyroscopically controlled fin stabilisers to reduce rolling. This ship was originally authorised in the 1960 program but was postponed and re-introduced into the 1961 program. Cost \$29,330,000.



HAMMERBERG ("Dealey" Class)

1965, Wright & Logan

- Rated as **Escort Ships (DE)**
5 "Dealey" and 8 "Evans" Classes
- 3 Bath Iron Works Corpn.

4 New York S.B. Corpn.
- 1006 DEALEY

1014 CROMWELL

1015 HAMMERBERG
- 1027 JOHN WILLIS

1028 VAN VOORHIS

1029 HARTLEY

1030 JOSEPH K. TAUSSIG
- 2 Bethlehem-Pacific Coast Steel

2 Puget Sound B. & D. Co.
- 1025 BAUER

1926 HOOPER (ex-Gatch)

2 Defoe S.B. Co., Bay City
- 1023 EVANS

1024 BRIDGET
- 1021 COURTNEY

1002 LESTER

Displacement: 1,450 tons standard (1,914 tons full load)
Dimensions: 314½ (o.a.)×36½×13½ feet
Guns: 4—3 inch, 50 cal., d.p. (2 twin)
A/S weapons: Weapon Alpha, 6 homing torpedo tubes (2 triple), DASH in some
Machinery: De Laval geared turbine, 1 shaft, S.H.P.: 20,000=25 kts.
Boilers: 2 Foster Wheeler
Oil fuel: 400 tons
Radius: 4,500 miles at 15 kts.
Complement: "Dealey" class 149 (9 officers, 140 men). "Evans" class 170 (11 officers, 159 men)



Name	Laid down	Launched	Completed
Cromwell	3 Aug. 53	4 June 54	24 Nov. 54
Dealey	15 Oct. 52	8 Nov. 53	3 June 54
Hammerberg	12 Nov. 53	20 Aug. 54	28 Feb. 55
Courtney	2 Sep. 54	2 Nov. 55	31 Aug. 56
Lester	2 Sep. 54	5 Jan. 56	14 June 57
Evans	8 Apr. 55	14 Sep. 55	14 June 57
John Willis	5 July 55	4 Feb. 56	21 Feb. 57
Van Voorhis	29 Aug. 55	28 July 56	15 Apr. 57
Bridget	19 Sep. 55	25 Apr. 56	24 Oct. 57
Hartley	31 Oct. 55	24 Nov. 56	30 July 57
Hooper	4 Jan. 56	1 Aug. 57	16 Apr. 58
J. K. Taussig	3 Jan. 56	3 Jan. 57	10 Sep. 57
Bauer	1 Dec. 56	4 June 57	22 Nov. 57

HARTLEY ("Evans" Class)

General
Dealey was the prototype for the first post-war anti-submarine vessels. Lavishly equipped with electronic gear. Designed specifically for fast convoy work and constructed so that in the event of war similar destroyer-escorts could be built rapidly. Single engine room. Single screw. Twin rudders. All aluminium superstructure saving 40 per cent in weight. 1,280 tons light displacement.

Gunnery
Dealey originally had an open twin 3 inch, 50 cal. mount forward, and she was fitted with 2 British Squids. All ships now have the forward 3 inch mount in a gunhouse. After 3 inch in DE 1024, 1030 and others replaced by DASH installation in 1965.

Added 1964, courtesy "Our Navy"

Photographs
A large port bow aerial view of Hooper and a broad side view of Dealey appear in the 1958-59 edition, a port bow view of Hammerberg in the 1957-58 to 1959-60 editions, a starboard broadside view of Bauer in the 1958-59 to 1960-61 editions, a port bow oblique aerial view of John Willis showing variable depth gear on the stern in the 1960-61 to 1963-64 editions, and a starboard bow oblique aerial view of Hooper in the 1959-60 to 1964-65 editions.

Class
The first five ships in the table are known as the "Dealey" class and the later eight as the "Evans" class

Rated as
Escort Ships, Radar Picket (DER)
2 Converted "John C. Butler" Class

Name:	DER 540 VANDIVIER	DER 539 WAGNER
Builders:	Boston Naval Shipyard	Boston Naval Shipyard
Laid down:	8 Nov. 1943	8 Nov. 1943
Launched:	27 Dec. 1943	27 Dec. 1943
Completed:	1 Dec. 1955	31 Dec. 1955
Displacement:	1,260 tons light, 1,745 tons standard (2,100 tons full load)	
Dimensions:	306 (o.a.)×36½×11 (max.) feet	
Guns:	2—5 inch, 38 cal. d.p.	
A-S weapons:	Hedgehogs and 2 torpedo launchers	
Machinery:	Westinghouse geared turbines, 2 shafts. S.H.P.: 12,000—24 kts.	
Boilers:	2 Babcock & Wilcox water tube	
Oil fuel:	340 tons	
Radius:	5,000 miles at 15 kts	
Complement:	187	

General
Launched as destroyer escorts (DEs), suspended in August 1946, and completed as Radar Picket Escort Vessels (DERs) at Boston Naval Shipyard.

Engineering
These two ships are the only steam driven DERs among all the Radar Picket Destroyer Escorts.



WAGNER

1957, U.S. Navy, Official

Destroyer Escorts—continued

Rated as Escort Ships (DE)
18 "Rudderow" Class

11 Bethlehem-Hingham	3 Bethlehem, Quincy
DE	DE
584 CHARLES J. KIMMEL	685 COATES
583 GEORGE A. JOHNSON	684 DE LONG
580 LESLIE B. KNOX	686 EUGENE E. ELMORE
586 LOUGH	
581 McNULTY	
582 METIVIER	2 Defoe S.B. Co., Bay City
588 PEIFFER	
579 RILEY	707 JOBB
587 THOMAS F. NICKEL	708 PARLE
589 TINSMAN	
1 Charleston Navy Yard	2 Philadelphia Navy Yard
231 HODGES	225 DAY
	224 RUDDERROW

Displacement:	1,450 tons standard (2,230 tons full load)
Dimensions:	306 (o.a.)×37×14 feet
Guns:	2—5 inch, 38 cal., 4—40 mm. AA., 6—20 mm. AA. (De Long 10—40 mm. AA.)
A/S weapons:	Hedgehog (see Anti-submarine notes below)
Machinery:	G.E. geared turbines, Turbo-electric drive, 2 shafts, S.H.P.: 12,000=24 kts.
Boilers:	2 water tube, Foster-Wheeler in DE 579-589, Babcock & Wilcox in DE 224, 225. Combustion Engineering in remainder
Oil fuel:	378 tons
Radius:	5,000 miles at 15 kts.
Complement:	180 (accommodation for 220)

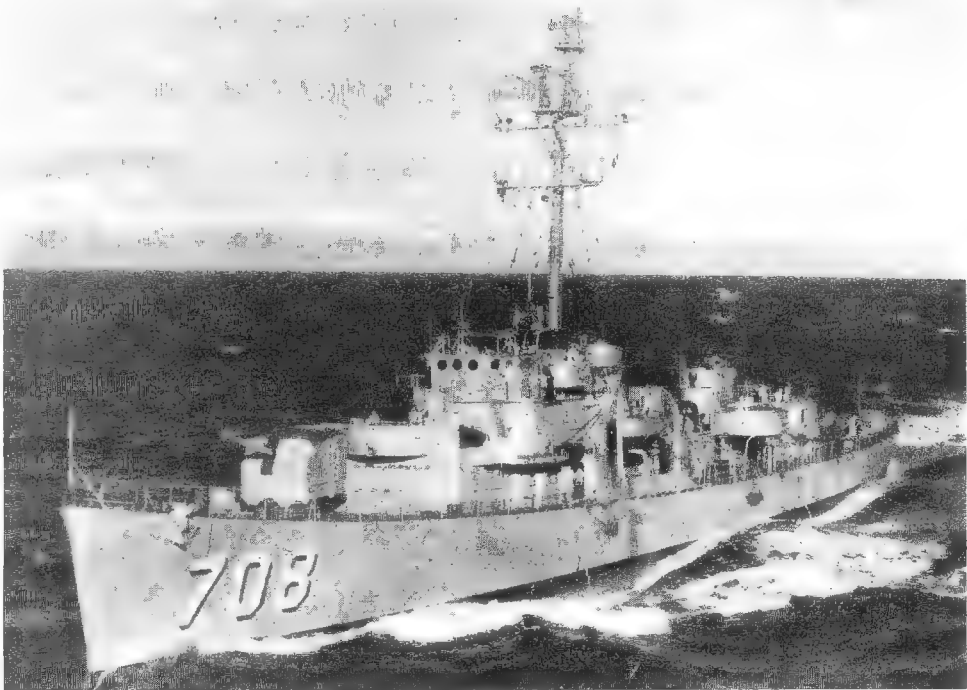
General
62 ships of this type were built. Originally rated as Destroyers Escorts (DE) but now grouped under the generic heading of Patrol Ships (Escort Ships).

Anti-Submarine
Many of the ships have trainable hedgehogs mounted forward, particularly those in use as reserve training ships. Coates has K-guns and torpedo launchers in addition.

Torpedo Tubes
The original 3—21 inch torpedo tubes were removed.

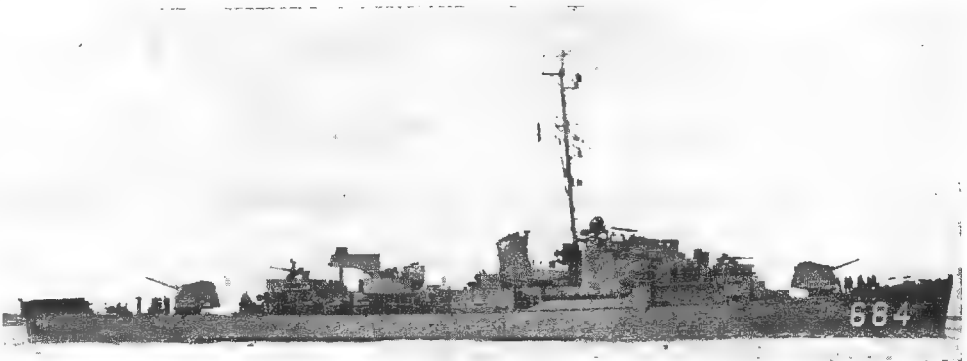
Disposals
Chaffee (DE 230) was scrapped. DE 226-229, 232-237, 590-606, 687-692, 710-722 were converted into Fast Transports (APD). Daniel A. Joy, DE 585, was stricken on 15 May 1965.

Name	Launched	Completed
Charles H. Kimmel	15 Jan. 1944	20 Apr. 1944
Coates	9 Dec. 1943	24 Jan. 1944
De Long	23 Nov. 1943	31 Dec. 1944
Day	14 Oct. 1943	10 June 1944
Eugene E. Elmore	23 Dec. 1943	4 Feb. 1944
George A. Johnson	21 Jan. 1944	15 Apr. 1944
Hodges	9 Dec. 1943	27 May 1944
Jobb	4 Mar. 1944	4 July 1944
Leslie L. B. Knox	8 Jan. 1944	22 Mar. 1944
Lough	22 Jan. 1944	2 May 1944
McNulty	8 Jan. 1944	31 Mar. 1944
Metivier	12 Jan. 1944	7 Apr. 1944
Parle	25 Mar. 1944	29 July 1944
Peiffer	26 Jan. 1944	15 June 1944
Riley	29 Dec. 1943	13 Mar. 1944
Rudderow	14 Oct. 1943	15 May 1944
Thomas F. Nickel	22 Jan. 1944	9 June 1944
Tinsman	29 Jan. 1944	26 June 1944



PARLE

1962, courtesy Mr. W. H. Davis



DE LONG Broadside silhouette

1955, courtesy B. L. Devenish-Meares, Esq.

Photographs
A larger port bow view of De Long appears in the 1957-58 to 1961-62 editions.

Transfers
Holt, DD 706, was transferred to the Korean Navy in 1963.

Rated as Escort Ships (DE, ex-DER)
6 Converted "Buckley" Class

DE	DE
577 ALEXANDER J. LUKE	578 ROBERT I. PAYNE
51 BUCKLEY	223 SPANGENBURG
153 REUBEN JAMES	213 WILLIAM T. POWELL

Displacement:	1,400 tons standard (2,170 tons full load)
Dimensions:	306 (o.a.)×37×14 feet
Guns:	2—5 inch, 38 cal. d.p., 8—40 mm. AA.
Machinery:	G.E. turbines, electric drive, 2 shafts, S.H.P.: 12,000=24 kts.
Boilers:	2 water tube, Babcock & Wilcox in DE 153 and 233. Combustion Engineering in DE 213, Foster Wheeler in remainder
Oil fuel:	340 tons
Radius:	5,000 miles at 15 kts.
Complement:	185 (accommodation for 220)

General
Built as Destroyer Escorts (DE) with 3—3 inch guns. Subsequently grouped under the generic heading of Patrol Vessels with the sub-classification, Escort Vessels. Converted and reclassified as "Escort Vessels, Radar Picket" (DER) in 1949-50, but in Oct. 1954 they were again reclassified as Escort Vessels (DE) and placed in reserve, out of commission, and on 25 Aug. 1960 they were reclassified as Escort ships (DE).

Disposals
Fogg, DE 57, was stricken on 10 Apr. 1965.



WILLIAM T. POWELL

1952, Ted Stone

Name	No.	Builders	Launched	Completed
Alexander J. Luke	DE 577	Bethlehem-Hingham	28 Dec. 1943	19 Feb. 1944
Buckley	DE 51	Bethlehem-Hingham	9 Jan. 1943	30 Apr. 1944
Rueben James	DE 153	Norfolk Naval Shipyard	6 Feb. 1943	1 Apr. 1943
Robert I. Payne	DE 578	Bethlehem-Hingham	30 Dec. 1943	28 Feb. 1944
Spangenburg	DE 223	Philadelphia Naval Shipyard	3 July 1943	15 Apr. 1944
William T. Powell	DE 213	Charleston Naval Shipyard	27 Nov. 1943	28 Mar. 1944

Rated as Escort Ships (DE)
74 "John C. Butler" Class

B Boston Naval Shipyard	DE
DE	347 JESSE RUTHERFORD
536 BIVIN	339 JOHN C. BUTLER
531 EDWARD H. ALLEN	370 JOHN L. WILLIAMSON
533 HOWARD F. CLARK	360 JOHNNIE HUTCHINS
535 LEWIS	354 KENNETH M. WILLETT
538 OSBERG	348 KEY
537 RIZZI	356 LLOYD E. ACREE
534 SILVERSTEIN	365 MCGINTY
532 TWEEDY	358 MACK
20 Brown S.B. Co., Houston	351 MAURICE J. MANUEL
421 CHESTER T. O'BRIEN	352 NAIFEH
405 DENNIS	340 O'FLAHERTY
422 DOUGLAS A. MUNRO	363 PRATT
423 DUFILHO	371 PRESLEY
406 EDMONDS	341 RAYMOND
424 HAAS	342 RICHARD W. SUESSENS
410 JACK MILLER	345 ROBERT BRAZIER
409 LA PRADE	362 ROLF
415 LAWRENCE C. TAYLOR	364 ROMBACH
420 LELAND E. THOMAS	369 THADDEUS PARKER
414 LE RAY WILSON	350 TRAW
416 MELVIN R. NAWMAN	361 WALTON
417 OLIVER MITCHELL	372 WILLIAMS
403 RICHARD M. ROWELL	14 Federal S.B. & D.D. Co., Port Newark
402 RICHARD S. BULL	447 ALBERT T. HARRIS
419 ROBERT F. KELLER	446 CHARLES E. BRANNON
411 STAFFORD	439 CONKLIN
408 STRAUS	438 CORBESIER
418 TABBERER	448 CROSS
412 WALTER C. WANN	508 GILLIGAN
32 Consolidated Steel Corp., Orange	444 GOSS
343 ABERCROMBIE	445 GRADY
366 ALVIN C. COCKRELL	449 HANNA
368 CECIL J. DOYLE	510 HEYLIGER
353 DOYLE C. BARNES	443 KENDALL C. CAMPBELL
346 EDWIN A. HOWARD	450 JOSEPH E. CONNOLLY
367 FRENCH	442 ULVERT M. MOORE
349 GENTRY	441 WILLIAM SEIVERLING
357 GEORGE E. DAVIS	
355 JACCARD	

Displacement:	1,350 tons standard (2,100 tons full load)
Dimensions:	306 (o.a.)×37×11 feet
Guns:	2—5 inch, 38 cal., 2—40 mm. AA.
A/S weapons:	1 or 2 hedgehogs, D.C.T.
Machinery:	Westinghouse or G.E. geared turbines. 2 shafts. S.H.P.: 12,000=24 kts.
Boilers:	2 water tube (Combustion Engineering or Babcock & Wilcox)
Oil fuel:	340 tons
Radius:	5,000 miles at 15 kts.
Complement:	190 (accommodation for 220)

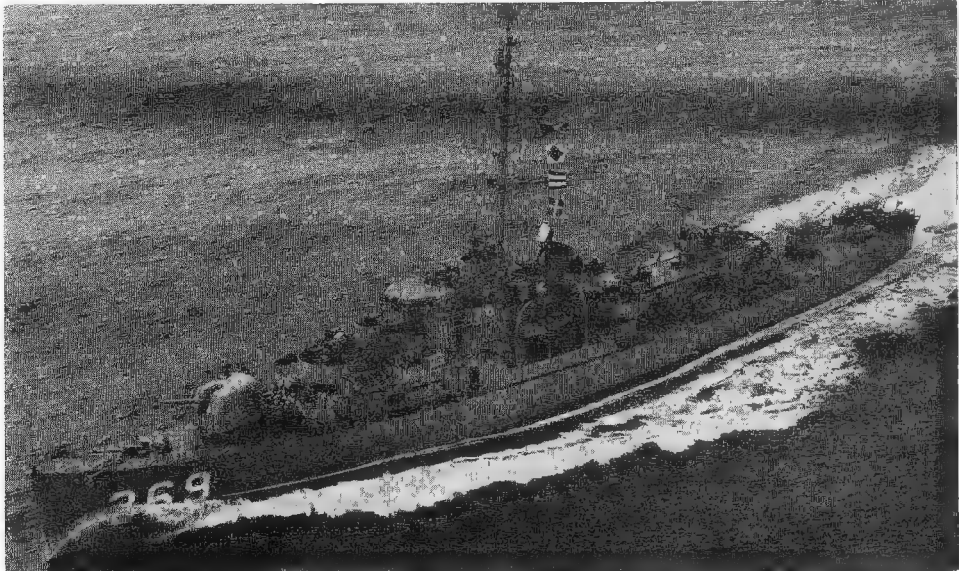
General
Originally rated as Destroyer Escort (DE), but re-rated as Escort Ships (DE).

Torpedo Tubes
The original 3—21 inch torpedo tubes were removed

Anti-Submarine Warfare
Alvin C. Cockrell has a trainable hedgehog forward, in "B" position. Two ships, Lewis and Tweedy, were converted to anti-submarine escorts. Lewis has two hedgehogs forward, in "B" position.

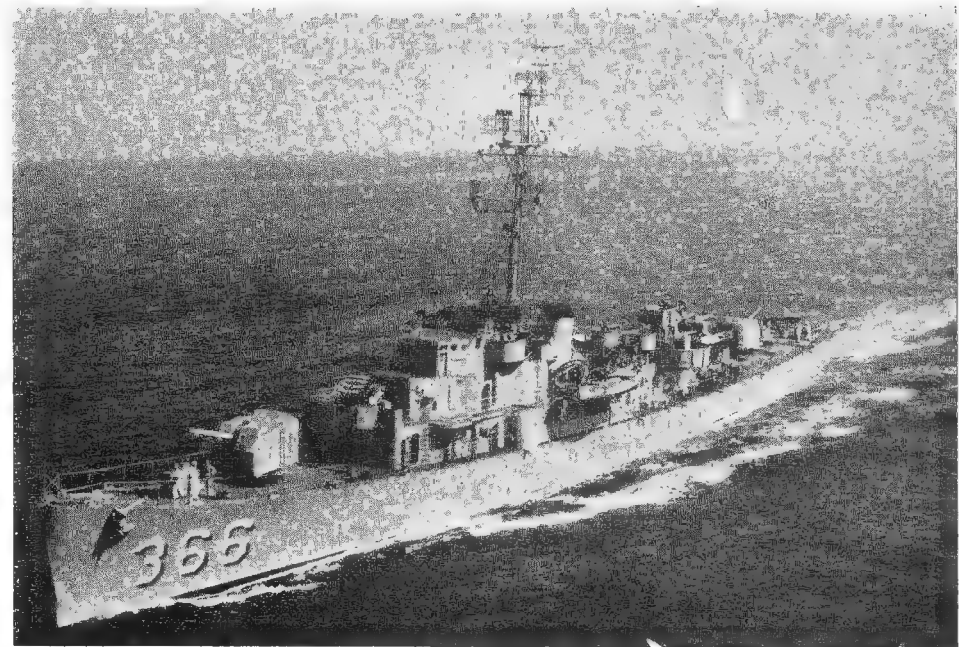
Class
The completion of Vandivier and Wagner of this class was suspended in Aug. 1946; but under the 1954 Fiscal Year Conversion Programme these two ships were completed as radar picket escort vessels (DER) at Boston Naval Shipyard (see previous page).

Name	Launched	Completed
Abercrombie	14 Jan. 1944	1 May 1944
Albert T. Harris	16 Apr. 1944	29 Nov. 1944
Alvin C. Cockrell	8 Aug. 1944	7 Oct. 1944
Bivin	7 Dec. 1943	31 Oct. 1944
Cecil J. Doyle	1 July 1944	16 Oct. 1944
Charles E. Brannon	23 Apr. 1944	1 Nov. 1944
Chester T. O'Brien	29 Feb. 1944	3 July 1944
Conklin	13 Feb. 1944	21 Apr. 1944
Corbesier	13 Feb. 1944	31 Mar. 1944
Cross	4 July 1944	8 Jan. 1945
Dennis	4 Dec. 1943	20 Mar. 1944
Douglas A. Munro	8 Mar. 1944	11 July 1945
Doyle C. Barnes	4 Mar. 1944	13 July 1944
Dufilho	9 Mar. 1944	21 July 1944
Edmonds	17 Dec. 1943	3 Apr. 1944
Edward H. Allen	17 Oct. 1943	16 Dec. 1943
Edwin A. Howard	25 Jan. 1944	25 May 1944
French	17 June 1944	9 Oct. 1944
Gentry	15 Feb. 1944	14 June 1944
George E. Davis	8 Apr. 1944	11 Aug. 1944
Gilligan	22 Feb. 1944	12 May 1944
Goss	19 Mar. 1944	26 Aug. 1944
Grady	2 Apr. 1944	11 Sep. 1944
Haas	20 Mar. 1944	2 Aug. 1944
Hanna	4 July 1944	27 Jan. 1945



THADDEUS PARKER

Added 1965, United States Navy, Official



ALVIN C. COCKRELL (trainable hedgehog)

1959, United States Navy, Official

Gunnery
The 6—20 mm. AA. guns in most ships have been or are being removed.

Photographs
A port oblique aerial view of Maurice J. Manuel (with mainmast) and a port broadside surface view of Rizzi appear in the 1954-55 to 1957-58 editions, a port oblique aerial view of Raymond in the 1957-58 and 1958-59 editions, a port bow surface view of Tweedy in the 1957-58 to 1961-62 editions, and a port bow oblique aerial view of Lewis (showing two hedgehogs in "B" position) in the 1959-60 to 1964-65 editions.

Transfers
Of this class, Formoe, DE 509, and McCoy Reynolds, DE 440, were loaned to Portugal on 7 Feb. 1957 for five years, and the loan was renewed in 1962 for the same term.

Disposals
The incomplete Oswald A. Powers, DE 542, and Sheehan, DE 541, of this class were scrapped. Woodson, DE 359, was stricken on 1 July 1965.

Casualties
Second World War losses: Eversole, DE 404, Oberrender, DE 344, Samuel B. Roberts, DE 413, and Shelton, DE 407.

Name	Launched	Completed	Name	Launched	Completed
Howard F. Clark	8 Nov. 1943	25 May 1944	Osberg	7 Dec. 1943	17 Dec. 1945
Heyliger	6 Aug. 1944	24 Mar. 1945	Pratt	1 June 1944	18 Sep. 1944
Jaccard	18 Mar. 1944	26 July 1944	Presley	19 Aug. 1944	7 Nov. 1944
Jack Miller	10 Jan. 1944	13 Apr. 1944	Raymond	8 Jan. 1944	15 Apr. 1944
Jesse Rutherford	29 Jan. 1944	31 May 1944	Richard M. Rowell	17 Nov. 1943	9 Mar. 1944
John C. Butler	11 Dec. 1943	31 Mar. 1944	Richard S. Bull	16 Nov. 1943	26 Feb. 1945
John L. Williamson	29 Aug. 1944	31 Oct. 1944	Richard W. Suesens	11 Jan. 1944	26 Apr. 1944
Johnnie Hutchins	2 May 1944	28 Aug. 1944	Rizzi	7 Dec. 1943	30 June 1944
Joseph E. Connolly	6 Aug. 1944	28 Feb. 1945	Robert Brazier	22 Jan. 1944	18 May 1944
Kendall C. Campbell	19 Mar. 1944	31 July 1944	Robert F. Keller	11 Feb. 1944	17 June 1944
Kenneth M. Willett	7 May 1944	19 July 1944	Rolf	23 May 1944	7 Sep. 1944
Key	12 Feb. 1944	5 June 1944	Rombach	6 June 1944	20 Sep. 1944
Lawrence C. Taylor	31 Dec. 1943	20 Apr. 1944	Silverstein	8 Nov. 1943	14 July 1944
Le Ray Wilson	29 Jan. 1944	13 May 1944	Stafford	11 Jan. 1944	19 Apr. 1944
Leland E. Thomas	28 Jan. 1944	10 May 1944	Stragus	30 Dec. 1943	6 Apr. 1944
Lewis	28 Feb. 1944	19 June 1944	Tabberer	18 Feb. 1944	23 May 1944
Lloyd E. Acree	7 Dec. 1943	5 Sep. 1944	Thaddeus Parker	26 Aug. 1944	25 Oct. 1944
Mack	21 Mar. 1944	1 Aug. 1944	Traw	14 Feb. 1944	20 June 1944
Maurice J. Manuel	11 Apr. 1944	16 Aug. 1944	Tweedy	7 Oct. 1943	12 Feb. 1944
Melvin R. Nawman	19 Feb. 1944	30 June 1944	Ulvert M. Moore	7 Mar. 1944	18 July 1944
McGinty	7 Feb. 1944	16 May 1944	Walter C. Wann	19 Jan. 1944	2 May 1944
Naifeh	5 Aug. 1944	25 Sep. 1944	Walton	20 May 1944	4 Sep. 1944
O'Flaherty	29 Feb. 1944	4 July 1944	William Seiverling	7 Mar. 1944	1 June 1944
Oliver Mitchell	14 Dec. 1944	8 Apr. 1944	Williams	22 Aug. 1944	11 Nov. 1944

Rated as Escort Ships (DE)

42 "Buckley" Class

Bethlehem-Hingham	800 JACK W. WILKE
DE	796 MAJOR
59 FOSS	798 VARIAN
	797 WEEDEN
4 Bethlehem, Quincy	10 Defoe Co., Bay City, Mich.
681 GILLETTE	704 CRONIN
679 GREENWOOD	700 CURRIER
683 HENRY R. KENYON	702 EARL V. JOHNSON
680 LOESER	705 FRYBARGER
8 Bethlehem, S. Francisco	697 GEORGE
	703 HOLTON
643 DAMON M. CUMMINGS	699 MARSH
640 FIEBERLING	701 OSMUS
639 GENDREAU	698 RABY
642 PAUL G. BAKER	696 SPANGLER
644 VAMMEN	3 Dravo Corpn., Pittsburgh
634 WHITEHURST	666 DURIK
641 WILLIAM C. COLE	665 JENKS
638 WILLMARTH	667 WISEMAN
6 Charleston Navy Yard	1 Norfolk Navy Yard
202 EICHENBERGER	198 LOVELACE
201 JAMES E. CRAIG	
199 MANNING	4 Philadelphia Navy Yard
200 NEUNDORF	217 COOLBAUGH
210 OTTER	218 DARBY
203 THOMASON	220 FRANCIS M. ROBINSON
5 Consolidated Steel Corpn., Orange	219 J. DOUGLAS BLACKWOOD
795 GUNASON	

Displacement:	1,400 tons standard (2,170 tons full load)
Dimensions:	306 (o.a.)×37×14 feet
Guns:	3—3 inch. 50 cal., 8—40 mm. AA. (Some have 2—5 inch, 38 cal.) see Gunnery
A/S weapons:	2 triple torpedo tubes in reserve training ships. Some have trainable hedgehog in "B" position
Machinery:	G.E. geared turbines, electric drive, 2 shafts. S.H.P.: 12,000 =24 kts.
Boilers:	2 water tube (Foster-Wheeler, Babcock & Wilcox, or Combustion Engineering)
Oil fuel:	340 tons
Radius:	5,000 miles at 15 kts.
Complement:	180 (accommodation for 220)

General
46 ships of this class were transferred in 1944 under Lend-Lease to the Royal Navy in which they served as frigates. Six of these were lost, and the remainder returned to U.S.A. for scrapping. Fifty more of the "Buckley" class were adapted as Fast Transports, Foss, Marsh, Wiseman and Whitehurst, as power supply ships. Fechteler and Underhill were lost in the Second World War. Solar was destroyed by internal explosion on 30 Apr. 1946.

Name	Launched	Completed
Coolbaugh	29 May 1943	15 Oct. 1943
Cronin	5 Jan. 1944	4 May 1944
Currier	14 Oct. 1943	1 Feb. 1944
Damon M. Cummings	18 Apr. 1944	29 June 1944
Darby	29 May 1943	15 Nov. 1943
Durik	9 Oct. 1943	24 Mar. 1944
Earl V. Johnson	12 Jan. 1944	18 Mar. 1944
Eichenberger	22 July 1943	17 Nov. 1943
Fieberling	2 Mar. 1944	11 Apr. 1944
Foss	10 Apr. 1943	23 July 1943
Francis M. Robinson	29 May 1943	15 Jan. 1944
Frybarger	25 Jan. 1944	18 May 1944
Gendreau	12 Dec. 1943	17 Mar. 1944
George	16 Feb. 1943	20 Nov. 1943
Gillette	25 Sep. 1943	27 Oct. 1943
Greenwood	21 Aug. 1943	25 Sep. 1943
Gunason	17 Oct. 1943	1 Feb. 1944
Henry R. Kenyon	30 Oct. 1943	30 Nov. 1943
Holton	15 Dec. 1943	1 May 1944
Jack W. Wilke	18 Dec. 1943	7 Mar. 1944
James E. Craig	22 July 1943	1 Nov. 1943
J. Douglas Blackwood	29 May 1943	15 Jan. 1943
Jenks	11 Sep. 1943	19 Jan. 1944
Loeser	11 Sep. 1943	10 Oct. 1943
Lovelace	4 July 1943	7 Nov. 1943
Major	23 Oct. 1943	12 Feb. 1944
Manning	1 Sep. 1943	1 Oct. 1943
Marsh	29 Jan. 1943	12 Jan. 1944
Neundorf	18 Sep. 1943	18 Oct. 1943
Osmus	4 Nov. 1943	23 Feb. 1944
Otter	23 Oct. 1943	21 Feb. 1944
Paul G. Baker	12 Mar. 1944	25 May 1944
Raby	4 Sep. 1943	7 Dec. 1943
Spangler	15 July 1943	31 Oct. 1943
Thomason	24 Aug. 1943	10 Dec. 1943
Vammen	21 May 1944	27 July 1944
Varian	6 Nov. 1943	29 Feb. 1944
Weeden	27 Oct. 1943	19 Feb. 1944
Whitehurst	5 Sep. 1943	19 Nov. 1943
William C. Cole	28 Dec. 1943	12 May 1944
Willmarth	21 Nov. 1943	13 Mar. 1944
Wiseman	6 Nov. 1943	4 Apr. 1944

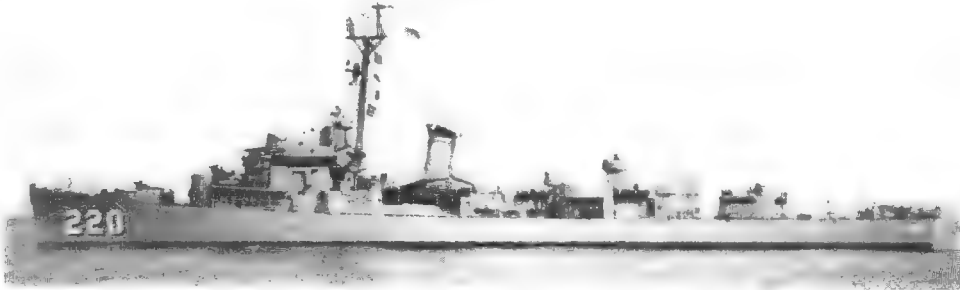
Disposals
Ahrens, DE 575, Borum, DE 790, Foreman, DE 633, Fowler, DE 222, Harmon, DE 678, Maloy, DE 791, Scott, DE 214, and Scroggins, DE 799, were stricken in 1965



J. DOUGLAS BLACKWOOD (5-inch gunned type) May 1964, Philadelphia, courtesy Dr. Ian S. Pearsall



VAMMEN (with mainmast) 1962, courtesy Mr. W. H. Davis



FRANCIS M. ROBINSON (3-inch gunned type) 1960, courtesy Mr. James Flynn



FRYBARGER (3-3inch) Added 1957, Ted Stone

Engineering
All DEs have alternate engine and boiler rooms. What looks like a central uptake is really only a cylindrical support for the dual stack trunk.

Class
Cronin, Frybarger and Raby were redesignated DEC (escort vessels, control) on reassignment to amphibious forces, but Cronin and Raby were decommissioned to the Reserve Fleet in June 1953, and Frybarger was placed in the Reserve Fleet in June 1954; all three of these DEC's were reclassified as DEs on 27 Dec. 1957.

Experimental
Vammen was converted for anti-submarine warfare. Maloy was rated as EDE (experimental destroyer escort) until she was decommissioned and stricken in 1965. Francis Robinson and Jack W. Wilkie were also EDEs until 1960 when they were decommissioned.

Conversion
Seven of this class were converted to Radar 'Pickets (see previous page) but reverted to DE.

Gunnery
Coolbaugh, Currier, Darby, George, Greenwood, Harmon, J. Douglas Blackwood, Loeser, Osmus, Raby and Spangler have 5 inch guns.

Photographs
A transom view of Maloy, with experimental gear on the stern, appears in the 1957-58 edition, a starboard bow view of Loeser in the 1958-59 edition, a starboard broadside view of Darby in the 1955-56 to 1961-62 editions, a port quarter aerial oblique view of Vammen in the 1957-58 to 1961-62 editions, a port bow oblique view of Vammen in the 1959-60 to 1961-62 editions, and a starboard dead broadside surface view of Coolbaugh in the 1955-56 to 1963-64 editions.

Destroyer Escorts—continued

Rated as Escort Ships (DE)

45 "Edsall" Class

21 Brown S.B. Co., Houston 24 Consolidated Steel Corp

DE	148 BROUGH
398 COCKRILL	149 CHATELAIN
252 HOWARD D. CROW	337 DALE W. PETERSON
250 HURST	335 DANIEL
396 JANSSEN	138 DOUGLAS J. HOWARD
243 J. RICHARD WARD	129 EDSALL
241 KEITH	139 FARQUHAR
249 MARCHAND	131 HAMMAN (ex-Langley)
392 MERRILL	137 HERBERT C. JONES
240 MOORE	141 HILL
253 PETTIT	145 HUSE
385 RICHEY	146 INCH
254 RICKETTS	130 JACOB JONES
245 SLOAT	140 J. R. Y. BLAKELEY
246 SNOWDEN	338 MARTIN H. RAY
247 STANTON	320 MENGES
238 STEWART	321 MOSLEY
399 STOCKDALE	150 NEUNZER
248 SWASEY	330 O'REILLY
394 SWENNING	152 PETERSON
242 TOMICH	151 POOLE
395 WILLIS	134 POPE
	323 PRIDE
	132 ROBERT E. PEARY

Displacement:	1,200 tons standard (1,850 tons full load)
Dimensions:	306 (o.a.)×37×11 feet
Guns:	3—3 inch, 50 cal., 8—40 mm. AA, 4—20 mm. AA.
A/S weapons:	Trainable Hedgehog and 2 torpedo rack side launchers in some ships. Considerable variations in the class. See broadside view of Snowden above which shows 6 ASW torpedo tubes in 2 triple mounts abaft the funnel 4 Fairbanks-Morse diesels, 2 shafts. B.H.P.: 6,000=21 kts.
Machinery:	279 tons
Oil fuel:	11,500 miles at 11 kts.
Radius:	149 (accommodation for 200)
Complement:	

General

Fessenden, Harveson, Joyce, Kirkpatrick, Otterstetter and Strickland of this class were converted to DER (Radar Picket Escort Vessels) in 1951, Haverfield, Pillsbury, Savage, and Wilhoite were converted to DER in 1954-55, Calcaterra, Chambers, Falgout, Kainer, Lowe and Rhodes were converted to DER in 1955-56, Brister, Camp, Durant, Finch, Forster, Hissem, Kretschmer, Lansing, Price, Roy O'Hale, Silstrom and Vance were converted to DER under the 1956 conversion programme. Six others were converted to DER under the Fiscal 1957 conversion programme (see next page). Falgout, Finch, Forster, Kainer, Lowe and Newell, transferred to the Coast Guard in 1951 and Chambers, Durant, Lansing, Ramsden, Richey, Vance in 1952, were returned to the Navy in 1954. War losses: Fiske, Frederick C. Davis, Halder Leopold.

Name	Launched	Completed
Brough	10 Apr. 1943	18 Sep. 1943
Chatelain	21 Aug. 1943	22 Sep. 1943
Cockrill	29 Oct. 1943	24 Dec. 1943
Dale W. Petersen	22 Dec. 1943	17 Feb. 1944
Daniel	16 Nov. 1943	24 Jan. 1943
Douglas L. Howard	25 Jan. 1943	29 July 1943
Edsall	1 Nov. 1942	10 Apr. 1943
Farquhar	13 Feb. 1943	5 Aug. 1943
Hamman	13 Dec. 1942	17 May 1943
Herbert C. Jones	19 Jan. 1943	21 July 1943
Hill	28 Feb. 1943	16 Aug. 1943
Howard D. Crow	26 Apr. 1943	27 Sep. 1943
Hurst	14 Apr. 1943	30 Aug. 1943
Huse	23 Mar. 1943	30 Aug. 1943
Inch	4 Apr. 1943	8 Sep. 1943
Jacob Jones	29 Nov. 1942	29 Apr. 1943
Janssen	10 Oct. 1943	18 Dec. 1943
J. Richard Ward	6 Jan. 1943	5 July 1943
J. R. Y. Blakeley	7 Mar. 1943	16 Aug. 1943
Keith	21 Dec. 1942	19 July 1943
Marchand	20 Mar. 1943	8 Sep. 1943
Martin H. Ray	29 Dec. 1943	28 Feb. 1944
Menges	15 June 1943	26 Oct. 1943
Merrill	29 Aug. 1943	27 Nov. 1943
Moore	21 Dec. 1942	1 July 1943
Mosley	26 June 1943	30 Oct. 1943
Neunzer	27 Apr. 1943	27 Sep. 1943
O'Reilly	2 Sep. 1943	28 Dec. 1943
Peterston	15 May 1943	29 Sep. 1943
Pettit	28 Apr. 1943	23 Sep. 1943
Poole	8 May 1943	29 Sep. 1943
Pope	12 Jan. 1943	25 June 1943
Pride	3 July 1943	13 Nov. 1943
Richey	20 June 1943	30 Oct. 1943
Ricketts	10 May 1943	5 Oct. 1943
Robert E. Peary	3 Jan. 1943	31 May 1943
Sloat	21 Jan. 1943	16 Aug. 1943
Snowden	19 Feb. 1943	23 Aug. 1943
Stanton	28 Feb. 1943	7 Aug. 1943
Stewart	22 Nov. 1942	31 May 1943
Stockdale	30 Oct. 1943	31 Dec. 1943
Swasey	18 Mar. 1943	31 Aug. 1943
Swenning	13 Sep. 1943	1 Dec. 1943
Tomich	28 Dec. 1942	26 July 1943
Willis	14 Sep. 1943	10 Dec. 1943



SNOWDEN (broadside)

May 1964, Philadelphia, courtesy Dr. Ian S. Pearsall



SNOWDEN

1956, Skyfotos



PETERSON (A/S)

1954, Skyfotos

Experimental

The conversion programme for 1955 provided for replacing the diesel engines in the escort vessel Mills (DE 383) with two British RM 60 gas turbines designed to reduce plant weight by approximately 15 per cent, while delivering 67 per cent more power; but this project was abandoned and Mills was converted to DER (Radar Picket).

Anti-Submarine

Peterston was converted (see photograph above) for specialised anti-submarine warfare, that is limited conversion with additional sonar and depth charge equipment added. She was recommissioned after conversion on 1 May 1952. She was decommissioned in 1965.

Torpedo Tubes

The original 3—21 inch torpedo tubes were removed.

Conversion

The following vessels were redesignated from DE to DER and converted under the Fiscal Year 1957 Shipbuilding and Conversion Programme:

Blair DE 147 to DER 147, Mills DE 383 to DER 383, Newell DE 322 to DER 322, Ramsden DE 382 to DER 382, Sturtevant DE 239 to DER 239, Thomas J. Gary DE 326 to DER 326. The conversion was carried out during 1956-58.

28 ships of this class were converted to Radar Pickets earlier, see full list under Converted "Edsall" class on following page.

Disposals

Flaherty, DE 135, and Frost, DE 144, were stricken on 1 Apr. 1965.

Destroyer Escorts—continued

Rated as

Escort Ships, Radar Picket (DER)

33 Converted "Edsall" Class

16 Brown S.B. Co., Houston	17 Consolidated Steel Corporation
DER	147 BLAIR
390 CALCATERRA	327 BRISTER
251 CAMP	324 FALGOUT
391 CHAMBERS	142 FESSENDEN
389 DURANT	328 FINCH
393 HAVERFIELD	334 FORSTER
400 HISSEM	316 HARVESON
388 LANSING	317 JOYCE
383 MILLS	318 KIRKPATRICK
244 OTTERSTETTER	331 KOINER
382 RAMSDEN	329 KRETCHMER
384 RHODES	325 LOWE
386 SAVAGE	322 NEWELL
255 SELLSTROM	332 PRICE
239 STURTEVANT	336 ROY O'HALE
387 VANCE	333 STRICKLAND
397 WILHOITE	326 THOMAS J. GARY

General
Originally rated as Destroyer Escorts (DE) but later grouped under the generic heading of Patrol Ships with the specific designation of Radar Picket Escort Ships. *Anti-Submarine Warfare*

The armament installed for anti-submarine warfare included a hedgehog and two side launching racks for torpedoes later replaced in some, if not all, ships by six ASW torpedo tubes in triple mounts.

Name	Launched	Completed
Blair	6 Apr. 1943	13 Sep. 1943
Bristler	24 Aug. 1943	30 Nov. 1943
Calcaterra	16 Aug. 1943	17 Nov. 1943
Camp	16 Apr. 1943	16 Sep. 1943
Chambers	17 Aug. 1943	22 Nov. 1943
Durant	3 Aug. 1943	16 Nov. 1943
Falgout	24 July 1943	15 Nov. 1943
Fessenden	9 Mar. 1943	25 Aug. 1943
Finch	28 Aug. 1943	13 Dec. 1943
Forster	13 Nov. 1943	25 Jan. 1944
Harveson	22 May 1943	12 Oct. 1943
Haverfield	30 Aug. 1943	29 Nov. 1943
Hissem	26 Dec. 1943	13 Jan. 1944
Joyce	26 May 1943	30 Sep. 1943
Kirkpatrick	5 June 1943	23 Oct. 1943
Koiner	5 Sep. 1943	27 Dec. 1943
Kretchmer	31 Aug. 1943	13 Dec. 1943
Lansing	3 Aug. 1943	10 Nov. 1943
Lowe	28 July 1943	22 Nov. 1943
Mills	26 May 1943	12 Oct. 1943
Newell	29 June 1943	30 Oct. 1943
Otterstetter	19 Jan. 1943	6 Aug. 1943
Price	30 Oct. 1943	12 Jan. 1944
Ramsden	24 May 1943	19 Oct. 1943
Rhodes	29 June 1943	25 Oct. 1943
Roy O'Hale	20 Nov. 1943	3 Feb. 1944
Savage	15 July 1943	29 Oct. 1943
Sellstrom	12 May 1943	12 Oct. 1943
Strickland	2 Nov. 1943	10 Jan. 1944
Sturtevant	3 Dec. 1942	16 June 1943
Thomas J. Gary	21 Aug. 1943	27 Nov. 1943
Vance	16 July 1943	1 Nov. 1943
Wilhoite	5 Oct. 1943	16 Dec. 1943

Disposals
Pillsbury, DER 133, was stricken on 1 July 1965.

Rated as Escort Ships (DE)

20 "Bostwick" Class

10 Federal S.B. & D.D. Co., Port Newark	3 Tampa S.B. Co.
DE	765 EARL K. OLSEN
167 ACREE	769 NEAL A. SCOTT
170 BOOTH	767 OSWALD
191 COFFMAN	
172 COONER	7 Western Pipe & Steel Co.
162 LEVY	
163 MCCONNELL	742 HILBERT
164 OSTERHAUS	743 LAMONS
165 PARKS	744 KYNE
181 STRAUB	750 MCCLELLAND
180 TRUMPETER	749 ROBERTS
	745 SNYDER
	748 TILLS

General
Originally rated as Destroyer Escorts (DE). 18 formerly on the disposal list were restored to the Reserve Fleet in 1952.

Name	Launched	Completed
Acree	9 May 1943	19 July 1943
Booth	21 June 1943	19 Sep. 1943
Coffman	28 Nov. 1943	27 Dec. 1943
Cooner	25 July 1943	21 Aug. 1943
Earl K. Olsen	13 Feb. 1944	10 Apr. 1944
Hilbert	18 July 1943	4 Feb. 1944
Kyne	15 Aug. 1943	4 Apr. 1944
Lamons	1 Aug. 1943	29 Feb. 1944
Levy	28 Mar. 1943	13 May 1943
McClelland	28 Nov. 1944	19 Sep. 1944
McConnell	28 Mar. 1943	28 May 1943
Neal A. Scott	4 June 1944	31 July 1944
Osterhaus	18 Apr. 1943	12 June 1943
Oswald	25 Apr. 1944	12 June 1944
Parks	18 Apr. 1943	22 June 1944
Roberts	14 Nov. 1943	2 Sep. 1943
Snyder	29 Aug. 1943	5 May 1944
Straub	18 Sep. 1943	25 Oct. 1943
Tills	3 Oct. 1943	8 Aug. 1944
Trumpeter	18 Sep. 1943	25 Oct. 1943



MILLS

April 1965, Wright & Logan



BLAIR

Added 1965, United States Navy, Official

Displacement: 1,590 tons standard (1,850 tons full load)
Dimensions: 306 (o.a.)×37×11 feet
Guns: 2—3 inch, 50 cal. d.p.
A/S weapons: Trainable Hedgehog, 6 homing torpedo tubes (2 triple), 1 D.C. rack
Machinery: 4 Fairbanks-Morse diesels, 2 shafts. B.H.P.: 6,000=21 kts.
Oil fuel: 300 tons
Radius: 11,500 miles at 11 kts.
Complement: 150 (accommodation for 187)

Torpedo Tubes
The three 21 inch torpedo tubes originally carried were removed.

Photographs
A port bow view of *Harveson*, before conversion, and a starboard broadside view of *Koiner*, as converted to radar picket, appear in the 1957-58 (Diamond Jubilee) edition, and a starboard bow view of *Pillsbury* in the 1957-58 to 1963-64 editions, a starboard broadside view of *Forster* in the 1957-58 to 1964-65 editions, and a port broadside view of *Wilhoite* in the 1958-59 to 1964-65 editions.

Gunnery
Now have shields on the 3 inch gun mountings. The six 20 mm. (3 twin) anti-aircraft guns formerly mounted were removed.

Conversion
Fessenden, *Harveston*, *Joyce*, *Kirkpatrick*, *Otterstetter* and *Strickland* were converted to DER in 1951. *Haverfield*, *Pillsbury*, *Savage* and *Wilhoite* in 1954-55, *Calcaterra*, *Chambers*, *Falgout*, *Koiner* *Lowe*, *Rhodes*, in 1955-56. *Bristler*, *Camp*, *Durant*, *Finch*, *Forster*, *Hissem*, *Kretchmer*, *Lansing*, *Price*, *Roy O'Hale*, *Sellstrom*, *Vince* in 1956-57. *Blair*, *Mills*, *Newell*, *Ramsden*, *Sturtevant* and *Thomas J. Gary* in 1956-58. New equipment included air search, height finder and surface search radar, and they were rigged to detect enemy action at sea or in the air in any form. Conversion included improvement in habitability by installing the mess compartment on the main deck (see photographs), and most of the new superstructure was of aluminium to reduce top weight. *Harveson*, underwent further conversion in 1957. *Blair*, DER 147, was converted from DE 147 under the 1957 program. Conversion work commenced on 2 Jan. 1957 and was completed on 2 Jan. 1958.

Many were decommissioned upon the disestablishment of radar barriers in 1965 when the seaward extension of early warning lines was discontinued.



ROBERTS

Added 1965, United States Navy, Official

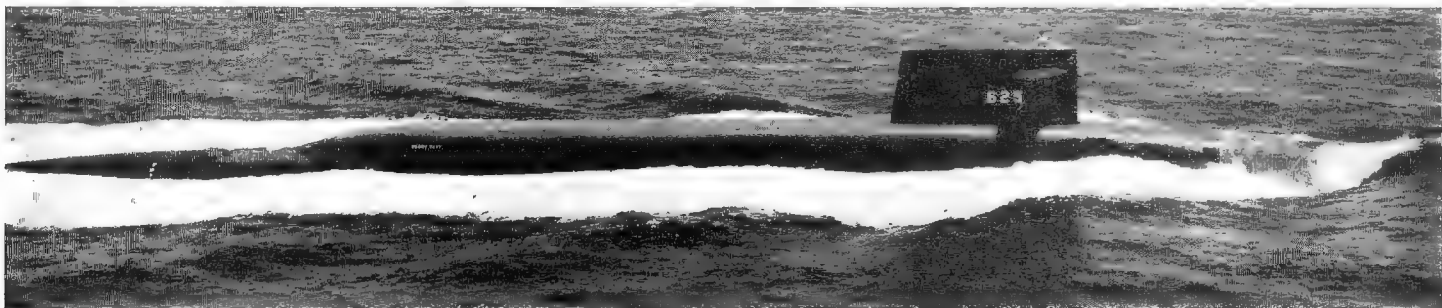
Displacement: 1,240 tons standard (1,900 tons full load)
Dimensions: 306 (o.a.)×37×14 feet
Guns: 3—3 inch, 50 cal. d.p., 2—40 mm. AA.
Tubes: 3—21 inch, in triple mount (some had tubes removed)
A/S weapons: Fixed hedgehog just abaft No. 1. 3 inch gun, D.C.T.
Machinery: G.M. diesels, electric drive, 2 shafts. B.H.P.: 6,000=19 kts.
Oil fuel: 300 tons
Radius: 1,500 miles at 11 kts.
Complement: 150 (accommodation for 220)

Disposals
Carroll, DE 171, and *Micka*, DE 176, were stricken on 1 Aug. 1965.

Photographs
A photograph of *Earl K. Olsen* appears in the 1953-54 to 1964-65 editions.

Transfer
Eight ships of this class were transferred to Brazil, four to China and 14 to France. *Ebert* (768), *Eldridge* (173), *Garfield Thomas* (193), and *Slater* (766), were transferred to Greece in 1951. *Burrows* (105), *Eisner* (192), *Gustafson* (182), *O'Neill* (188), *Rinehart* (196) and *Stern* (187) to the Netherlands in 1950-51, *Gandy* (764), *Thornhill* (195), and *Wesson* (184) to Italy in 1951. *Bangust* (739), *Waterman* (740), and *Weaver* (741) to Peru in 1952, and *Baron* (166) and *Bronstein* (189) to Uruguay in 1951. *Amick*, DE 168, and *Ather-ton*, DE 169, were loaned to Japan in 1955. *Muir* (770) and *Sutton* (771) were transferred to the South Korean Republic in 1956. *Hemmlinger*, DE 746, to Thailand in July 1959.

SUBMARINES



HENRY CLAY

1964, United States Navy, Official

Nuclear Powered Fleet Ballistic Missile Submarines (SSBN)
31 "Lafayette" Class

13 Electric Boat Division, General Dynamics Corpn.

- SSBN 616 LAFAYETTE
- SSBN 617 ALEXANDER HAMILTON
- SSBN 623 NATHAN HALE
- SSBN 626 DANIEL WEBSTER
- SSBN 628 TECUMSEH
- SSBN 631 ULYSSES S. GRANT
- SSBN 633 CASIMIR PULASKI
- SSBN 640 BENJAMIN FRANKLIN
- SSBN 643 GEORGE BANCROFT
- SSBN 645 JAMES K. POLK
- SSBN 655 HENRY L. STIMSON
- SSBN 657 FRANCIS SCOTT KEY
- SSBN 659 WILL ROGERS

10 Newport News Shipbuilding and Dry Dock Company

- SSBN 622 JAMES MONROE
- SSBN 625 HENRY CLAY
- SSBN 627 JAMES MADISON
- SSBN 630 JOHN C. CALHOUN
- SSBN 632 VON STEUBEN
- SSBN 635 SAM RAYBURN
- SSBN 641 SIMON BOLIVAR
- SSBN 644 LEWIS AND CLARK
- SSBN 654 GEORGE C. MARSHALL
- SSBN 656 GEORGE WASHINGTON CARVER

6 Mare Island Naval Shipyard, California

- SSBN 619 ANDREW JACKSON
- SSBN 624 WOODROW WILSON
- SSBN 624 DANIEL BOONE
- SSBN 634 STONEWALL JACKSON
- SSBN 642 KAMEHAMEHA
- SSBN 658 MARIANO G. VALLEJO

2 Portsmouth Naval Shipyard, New Hampshire

- SSBN 620 JOHN ADAMS
- SSBN 636 NATHANAEEL GREENE

- Displacement: 7,250 tons standard (8,250 tons submerged)
- Dimensions: Length: 425 feet, Beam: 33 feet Draught: 33 feet
- Ballistic weapons: 16 tubes amidships for A-3 model "Polaris" missiles with a range of 2,500 nautical miles (see Missile Launching)
- Torpedo tubes: 4-21 inch forward
- Machinery: 1 pressurised water cooled nuclear reactor. Geared turbines. 1 shaft, S.H.P.: 15,000=20 kts. surface, 35 kts. submerged
- Complement: 140 (14 officers, 126 men)

General

These latest "Polaris" missile submarines are the largest undersea craft ever built. The light surface displacement is 6,650 tons. Lafayette, named after the French aristocrat who served with Washington in the American Revolution, was the prototype and lead ship. Construction plans and design were awarded to the Electric Boat Division, Groton, Connecticut, on 24 Mar. 1960.

The first four were authorised under the 1960 New Construction Programme, five more under the 1961 programme and ten under the 1962 programme. Cost \$109,500,000 each.

SSBN 640-645 were authorised in the Fiscal Year 1963 New Construction Programme. Advanced nuclear powered fleet ballistic missile submarines capable of firing the A-3 model "Polaris" missile while surfaced or submerged.

These six 1963 Programme units, together with six more in the 1964 Programme, will bring the number of Polaris armed submarines up to the total 41 planned.

Missile Launching

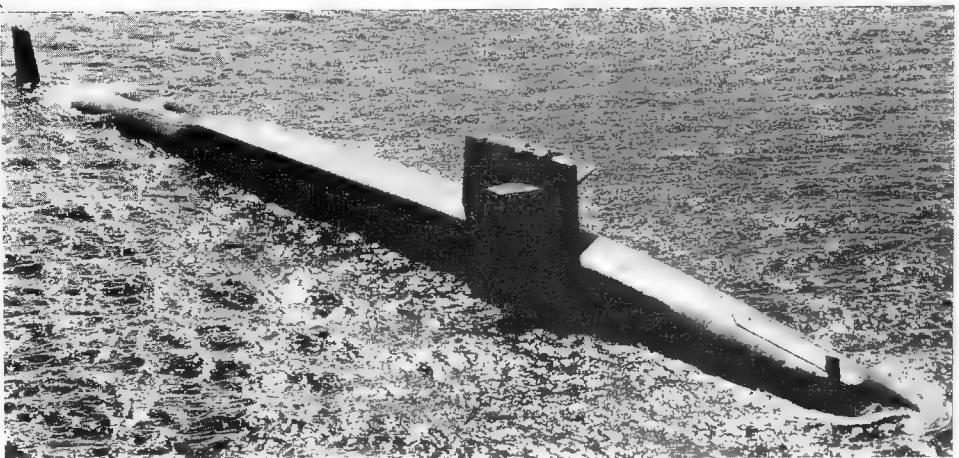
The first eight of this class are fitted with A-2 missiles with 1,500 nautical miles range.

The "Polaris" missiles are launched from 16 vertical launchers within the submarine's hull, by compressed air, except the six units provided for under the Fiscal Year 1964 Programme, which will have steam launchers for the "Polaris" missiles. Missiles ejected by compressed air in all SSBNs prior to Nathan Hale and all subsequent. Small solid rocket motor burns and pours its extremely hot gases into a water-filled chamber where steam is produced instantaneously, which ejects missile. Andrew Jackson launched the first A-3 Polaris missile from a submarine on 26 Oct. 1963 off Cape Canaveral (Kennedy), Fla. Missile fired by compressed air. 15 tons, 2,500 nautical miles.



ANDREW JACKSON

1965, United States Navy, Official



ALEXANDER HAMILTON

1963, United States Navy, Official

Photographs

A larger photograph of Lafayette appears in the 1963-64 edition, an oblique aerial view of Lafayette in the 1963-64 and 1964-65 editions, and a photograph of Henry Clay launching a Polaris missile in the Frontispiece of the 1964-65 edition.

Engineering

SSBN 640 et seq: were re-engineered. SSBN 654 et seq: were re-engineered, but are of SSBN 616 class.

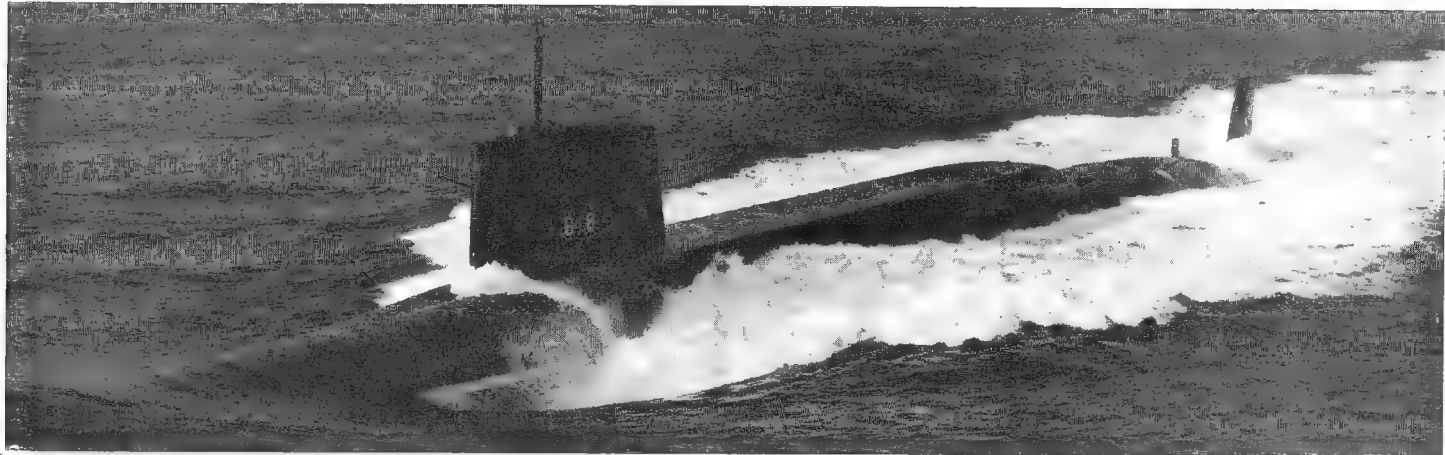
Diving

Daniel Webster had diving planes on bow instead of sail, the only one of the class to fitted.

Name	Laid down	Launched	Commissioned
Alexander Hamilton	26 June 61	18 Aug. 62	27 June 63
Andrew Jackson	26 Apr. 61	15 Sep. 62	3 July 63
Benjamin Franklin	25 May 63	5 Dec. 64	
Casimir Pulaski	12 Jan. 63	1 Feb. 64	14 Aug. 64
Daniel Boone	6 Feb. 62	22 June 62	23 Apr. 64
Daniel Webster	28 Dec. 61	27 Apr. 63	9 Apr. 64
Francis Scott Key	5 Dec. 64		
George Bancroft	24 Aug. 63	20 Mar. 65	
Geo. C. Marshall	2 Mar. 64	21 May 65	
Geo. Wash. Carver	24 Aug. 64	14 Aug. 65	
Henry Clay	23 Oct. 61	30 Nov. 62	20 Feb. 64
Henry L. Stimson	4 Apr. 64		
James K. Polk	23 Nov. 63	22 May 65	
James Madison	5 Mar. 62	15 Mar. 63	28 July 64
James Monroe	31 July 61	4 Aug. 62	7 Dec. 63

Name	Laid down	Launched	Commissioned
John Adams	19 May 61	12 Jan. 63	12 May 64
John C. Calhoun	4 June 62	22 June 63	15 Sep. 64
Kamehameha	2 May 63	16 Jan. 65	
Lafayette	17 Jan. 61	8 May 62	23 Apr. 63
Lewis and Clark	29 July 63	21 Nov. 64	
Mariano G. Vallejo	7 July 64		
Nathan Hale	2 Oct. 61	12 Jan. 63	23 Nov. 63
Nathanael Greene	21 May 62	12 May 64	19 Dec. 64
Sam Rayburn	3 Dec. 62	20 Dec. 63	2 Dec. 64
Simon Bolivar	17 Apr. 63	22 Aug. 64	
Stonewall Jackson	4 July 62	30 Nov. 63	26 Aug. 64
Tecumseh	1 June 62	22 June 63	29 May 64
Ulysses S. Grant	18 Aug. 62	2 Nov. 63	17 July 64
Von Steuben	4 Sep. 62	18 Oct. 63	30 Sep. 64
Will Rogers	20 Mar. 65		
Woodrow Wilson	13 Sep. 61	22 Feb. 63	27 Dec. 63

Submarines — continued



THOMAS JEFFERSON

1965, United States Navy, Official



JOHN MARSHALL

1964, United States Navy, Official

Nuclear Powered Fleet Ballistic Missile Submarines (SSBN)

5 "Ethan Allen" Class

2 Electric Boat Division, General Dynamics Corporation

SSBN 608 ETHAN ALLEN
SSBN 610 THOMAS A. EDISON

3 Newport News Shipbuilding and Dry Dock Company

SSBN 609 SAM HOUSTON
SSBN 611 JOHN MARSHALL
SSBN 618 THOMAS JEFFERSON

- Displacement: 6,900 tons standard (8,000 tons submerged)
Dimensions: Length: 410 feet. Beam: 34 feet. Draught: 30½ feet
Ballistic weapons: 16 tubes amidships for A-2 model "Polaris" missiles with a range of 1,500 nautical miles
Torpedo tubes: 4—21 inch forward
Machinery: 1 Westinghouse pressurised water cooled nuclear reactor. Geared turbines. 1 shaft. S.H.P.: 15,000—20 kts. (surface), 35 kts. (submerged)
Complement: 112 (12 officers, 100 men)

General

Ethan Allen was the lead ship in a new class of fleet ballistic missile submarines, larger than the "George Washington" class, with a new hull design. She cost \$105,000,000. The class is of a larger and much improved type over the first group of SSBNs. One big difference is that the hull was specially designed to accommodate the missiles, whereas the hulls of the first five SSBNs were adapted from existing hull designs.

Construction

The contracts for Sam Houston, Thomas A. Edison and John Marshall, were awarded on 1 July 1959. The completion dates given in the table below are commissioning dates.

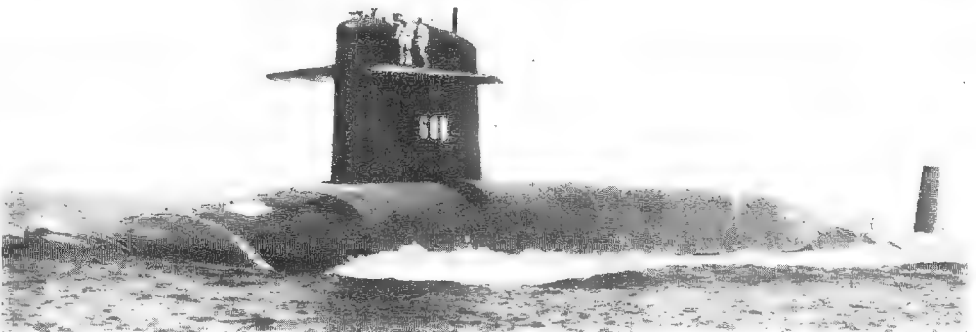
Engineering

General Electric turbines in Ethan Allen and Thomas A. Edison, Westinghouse in others.

Photographs

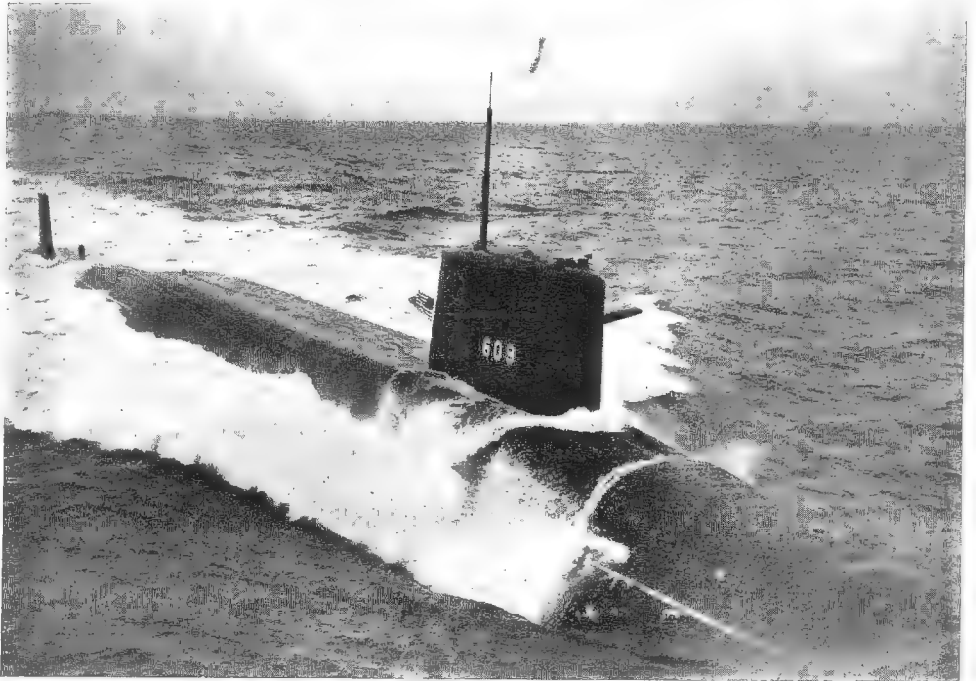
A larger photograph of Ethan Allen showing sonar dome forward appears in the 1963-64 edition, and a large oblique aerial view of Thomas A. Edison in the 1962-63 to 1964-65 editions.

Name	Laid down	Launched	Completed
Ethan Allen	14 Sep. 59	22 Nov. 60	8 Aug. 61
John Marshall	4 Apr. 60	15 July 61	21 May 62
Sam Houston	28 Dec. 59	2 Feb. 61	6 Mar. 62
Thomas A. Edison	15 Mar. 60	15 June 61	10 Mar. 62
Thomas Jefferson	3 Feb. 61	24 Feb. 62	4 Jan. 63



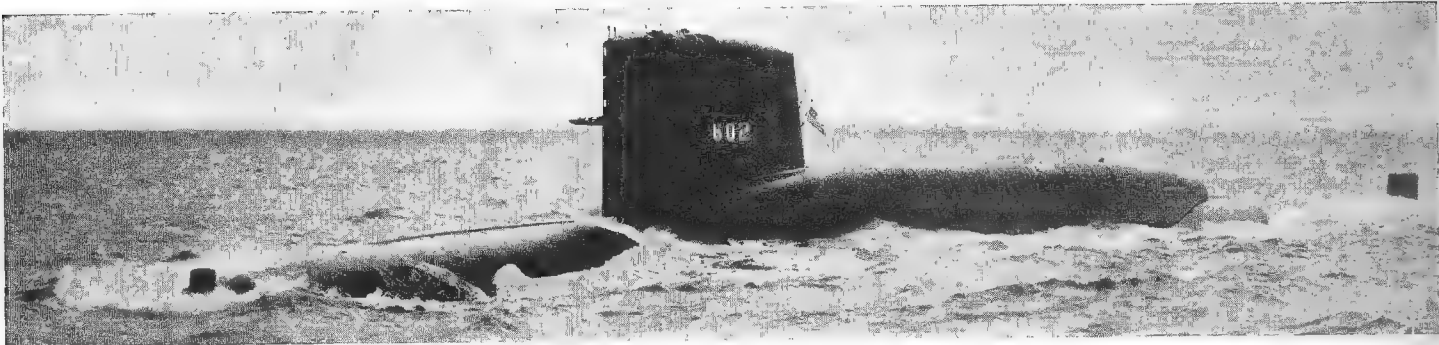
ETHAN ALLEN

1962, courtesy Mr. W. H. Davis



SAM HOUSTON

1962, United States Navy, Official



ABRAHAM LINCOLN

1961, United States Navy, Official

Nuclear Powered Fleet Ballistic Missile Submarines (SSBN)

5 "George Washington" Class

2 Electric Boat Division General Dynamics Corporation
SSBN 598 GEORGE WASHINGTON
SSBN 599 PATRICK HENRY

1 Mare Island Naval Shipyard, California
SSBN 600 THEODORE ROOSEVELT

1 Newport News Shipbuilding and Dry Dock Company
SSBN 601 ROBERT E. LEE

1 Portsmouth Naval Shipyard, New Hampshire
SSBN 602 ABRAHAM LINCOLN

- Displacement: 5,600 tons standard (6,700 tons submerged)
Dimensions: Length: 382 feet. Beam: 33 feet. Draught: 29 feet
Ballistic missiles: 16 tubes amidships for A-1 model "Polaris" missiles (28 feet long, 50 ins. diam., 15 tons weight, with nuclear warheads, and a range of 1,200 nautical miles), capable of being launched while surfaced or submerged. (see Missiles)
Tubes: 6—21 inch forward
Machinery: 1 pressurised water-cooled nuclear reactor. Geared turbine. 1 shaft. S.H.P.: 15,000=20 kts. surface, 35 kts. submerged
Complement: 112 (12 officers, 100 men). (Two complete crews designated "Blue" and "Gold" relieving each other about every three months)

General

The first 1957-58 Supplemental New Construction Programme signed on 11 Feb. 1958 provided \$296,000,000 for the construction of three nuclear powered submarines armed with "Polaris" ballistic missiles. They had the "Albacore" type hull, giving them high underwater speed, and were equipped with "SINS", the new navigational system, and new stabilising and electronics apparatus incorporating the most recent engineering advances. They were designed specifically for launching "Polaris" missiles, fired submerged, vertically from within the submarine, and "Subroc" anti-ship missiles fired through torpedo tubes. They differ from nuclear powered submarines of subsequent construction chiefly in their missile features. Ordered on 14 Feb. 1958. This class have an auxiliary diesel engine and batteries, both of which can be used for emergency propulsion.

In July 1958 contracts were awarded for two more nuclear powered submarines for carrying "Polaris" missiles, under the Second 1957-58 Supplemental New Construction programme. With whale-shaped hulls, they are of modified "Skipjack" design with a 128 ft. missile launching section inserted.

Missiles

George Washington successfully fired the solid-fuelled "Polaris" missile for the first time from a submarine from a submerged position on 20 July 1960. The sixteen launching tubes are arranged in double vertical rows along the after deck abaft the "sail" (conning tower fin). The gyro-stabiliser has an 8 ft. diameter wheel with a weight of 22 tons and a total weight of 50 tons. All sixteen missiles can be fitted in fifteen minutes. George Washington was converted to launch A-3 model "Polaris" missiles with a range of 2,500 nautical miles during a one-year overhaul, June 1964-June 1965, at Groton, Conn. She also underwent nuclear reactor core replacement, her first "refuelling" after steaming over 100,000 miles. All this class will convert to A-3 "Polaris" installation.

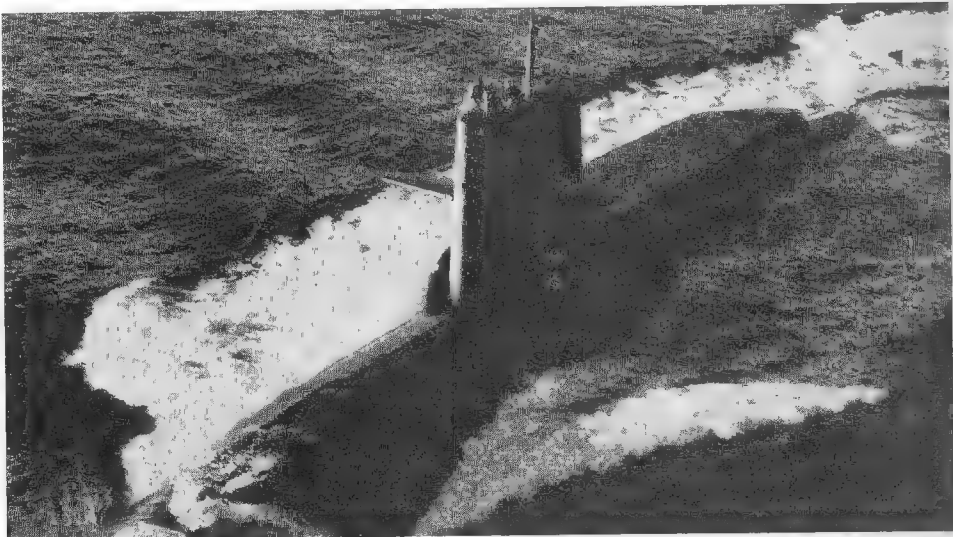
Photographs

A large starboard broadside surface view of George Washington and a port quarter oblique aerial view of Patrick Henry appear in the 1960-61 and 1961-62 editions, and a port bow oblique aerial view of Patrick Henry in the 1960-61 to 1962-63 editions.

Nomenclature

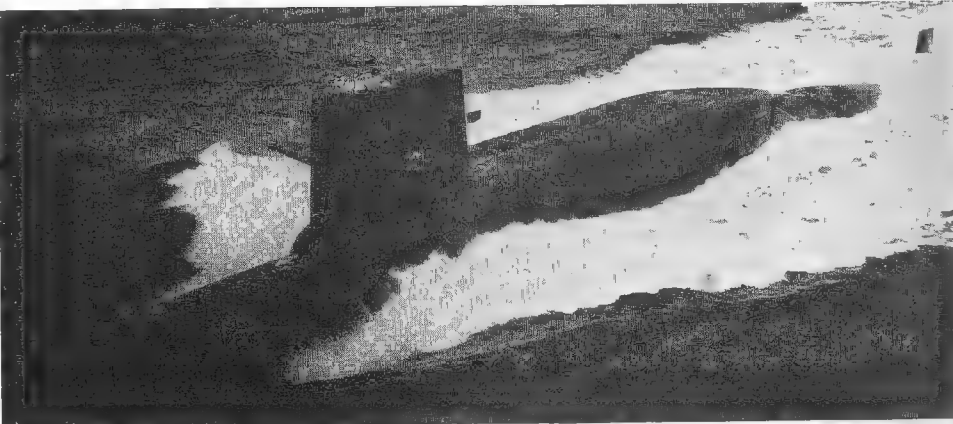
All nuclear powered fleet ballistic missile submarines armed with "Polaris" weapons are named after men famous in United States history.

Name	Laid down	Launched	Completed
Abraham Lincoln	1 Nov. 58	14 May 60	31 Jan. 61
George Washington	1 Nov. 57	9 June 59	15 Nov. 59
Patrick Henry	27 May 58	22 Sep. 59	7 Mar. 60
Robert E. Lee	25 Aug. 58	18 Dec. 59	31 Sep. 60
Theodore Roosevelt	20 May 58	3 Oct. 59	12 Dec. 60



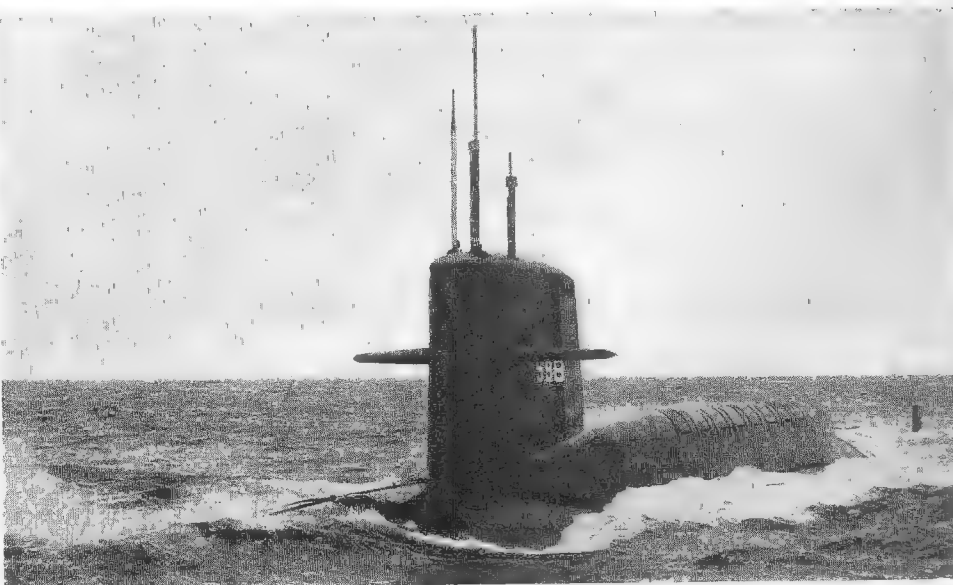
THEODORE ROOSEVELT

1963, United States Navy, Official



ROBERT E. LEE

1961, United States Navy, Official



GEORGE WASHINGTON

1960, Electric Boat Division, General Dynamics Corporation



TINOSSA

1965, United States Navy, Official

Nuclear Powered Attack Submarines (SSN) 24 + 18 "Thresher" Group

2 General Dynamics Corp., Quincy, Massachusetts*
SSN 638 WHALE **SSN 649 SUNFISH**
 5 Electric Boat Division, General Dynamics Corporation
SSN 613 FLASHER **SSN 637 STURGEON**
SSN 614 GREENLING **SSN 650 PARGO**
SSN 615 GATO **SSN 671 NARWHAL**
 6 Ingalls Shipbuilding Corp., Pascagoula Mississippi
SSN 596 BARB (ex-Pollack, ex-Plunger)
SSN 607 DACE **SSN 639 TAUTOG**
SSN 621 HADDOCK **SSN 648 ASPRO**
SSN 652 PUFFER
 3 Mare Island Naval Shipyard, California
SSN 594 PERMIT **SSN 662 GURNARD**
SSN 595 PLUNGER (ex-Pollack)
 5 Newport News Shipbuilding and Dry Dock Company
SSN 651 QUEENFISH **SSN 663 HAMMERHEAD**
SSN 653 RAY **SSN 664**
SSN 661 LAPON **SSN 668**
SSN 670

4 New York Shipbuilding Corp., Camden, New Jersey
SSN 603 POLLACK (ex-Barb) **SSN 612 GUARDFISH**
SSN 604 HADDO **SSN 647 POGY**
 4 Portsmouth Naval Shipyard, New Hampshire
SSN 605 JACK **SSN 646 GRAYLING**
SSN 606 TINOSSA **SSN 660 SANDLANCE**

Displacement: 3,750 tons standard (4,300 tons submerged) see Class Variations
 Dimensions: Length: 278½ feet. Beam: 31½ feet. Draught: 25½ feet
 Tubes: 4—21 inch amidships
 A/S weapons: SUBROC (see A/S Warfare)
 Machinery: 1 pressurised water cooled nuclear reactor. Geared turbines, 1 shaft. S.H.P.: 15,000=20 kts. (surface), 35 kts. (submerged)
 Radius: 60,000 miles without refueling
 Complement: 99 (12 officers, 87 men)

General

Of improved design with "tear-drop" hull. Diving planes attached to the "sail" or conning tower fin, instead of the bow, to improve manoeuvrability. Torpedo tubes set in both sides amidships instead of in the bow. Capable of diving deeper and running more quietly at high speeds than other submarines. Diving and steering operations controlled automatically by push buttons. Long range sonar. Cost \$49,000,000 to \$57,000,000 each.

*Sunfish and Whale were taken over by General Dynamics Corporation which acquired Bethlehem Quincy Yard in 1964.

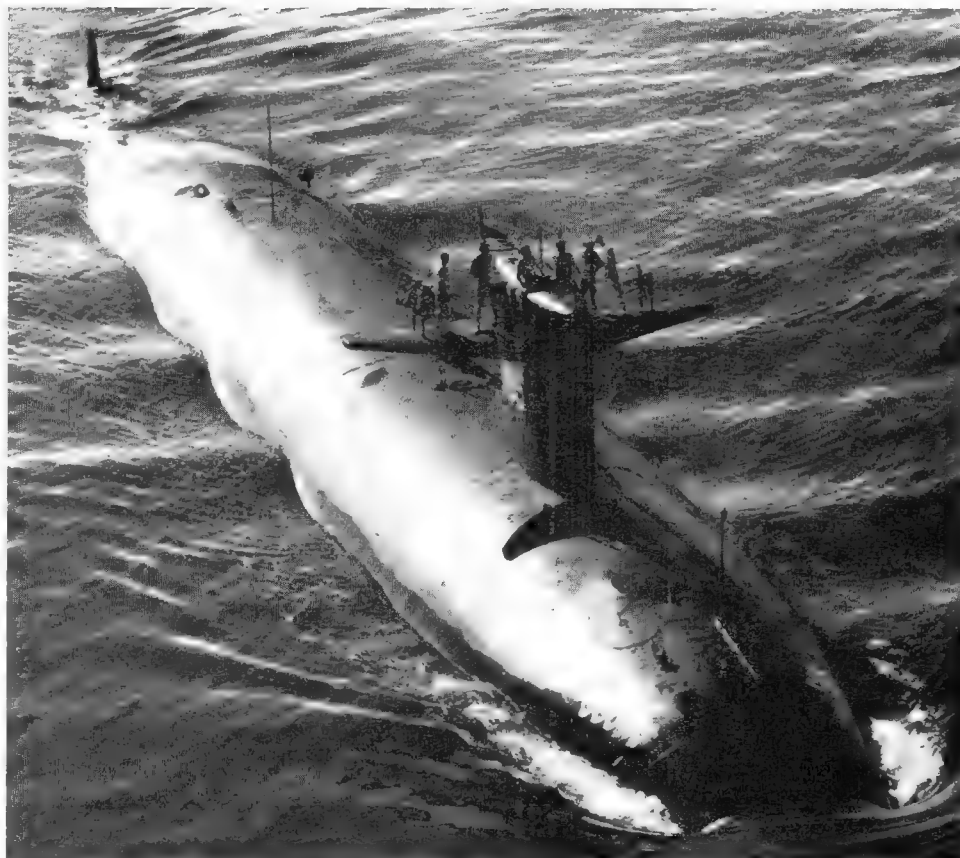
Shipbuilding Programme Year

1958: Barb, Permit, Plunger. 1959: Dace, Haddo, Jack, Pollack, TinoSSA, 1960: Flasher, Gato, Greenling, Guardfish. 1961: Haddock. 1962: Sturgeon, Tautog, Whale. 1963: Aspro, Grayling, Pargo, Pogy, Puffer, Queenfish, Ray, Sunfish. Six more in the 1964 programme, six in 1965, six in 1966.

Anti-Submarine Warfare

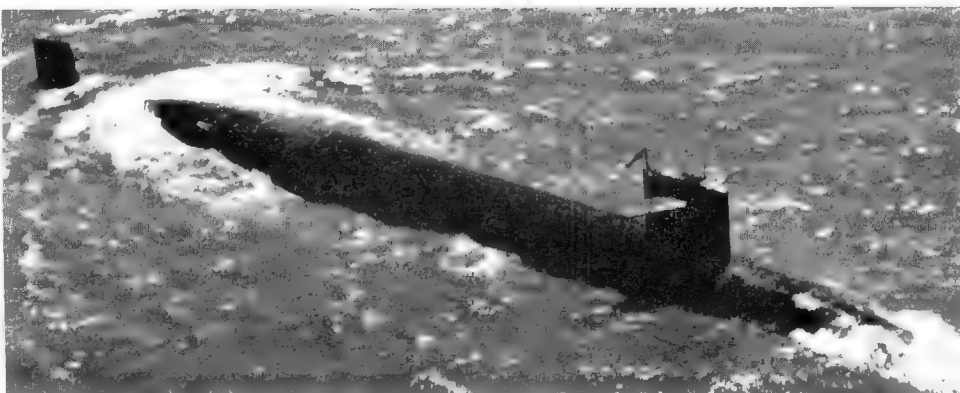
The SUBROC anti-submarine missile is fired from a conventional 21-inch torpedo tube, after which it streaks for the surface, leaves the water in a ballistic trajectory and re-enters miles from the launching submarine. Back in the water, SUBROC becomes a submarine hunting torpedo. Either a high explosive or nuclear warhead can be fitted.

Name	Laid down	Launched	Completed:
Aspro	23 Nov. 64		
Barb	9 Nov. 59	12 Feb. 62	17 Aug. 63
Dace	6 June 60	18 Aug. 62	4 Apr. 64
Flasher	14 Apr. 61	22 June 63	
Gato	15 Dec. 61	14 May 64	
Grayling	12 May 64		
Greenling	15 Aug. 64	4 Apr. 64	
Guardfish	28 Feb. 61	15 May 65	
Gurnard	22 Dec. 64		
Haddo	9 Sep. 60	18 Aug. 62	27 Sep. 64
Haddock	24 Apr. 61		
Jack	16 Sep. 60	24 Apr. 63	
Narwhal	15 May 65		
Pargo	3 June 64		
Permit	16 July 59	1 July 61	6 June 62
Plunger	2 Mar. 60	9 Dec. 61	21 Nov. 62
Pogy	5 May 64		
Pollack	14 Mar. 60	17 Mar. 62	26 May 64
Puffer	8 Feb. 65		
Queenfish	11 May 64		
Ray	4 Jan. 65		
Sturgeon	10 Aug. 63		
Sunfish	15 Jan. 65		
Tautog	27 Jan. 64		
TinoSSA	24 Nov. 59	9 Dec. 61	17 Oct. 64
Whale	27 May 64		



PLUNGER

1963, United States Navy, Official



PERMIT

1963, United States Navy, Official

Class Variations

The above particulars refer to the original "Thresher" class: Barb, Dace, Guardfish, Haddo, Haddock, Permit, Plunger, Pollack and TinoSSA. Jack is 295½ feet long with a submerged displacement of 4,500 tons.

The "Sturgeon" sub-class is of modified "Thresher" type with improved sonar and torpedo fire control features. 310 tons heavier and 13½ feet longer (Aspro, Grayling, Pargo, Pogy, Puffer, Queenfish, Ray, Sturgeon, Sunfish, Tautog, Whale).

SSN 660-671 are of "Sturgeon" class, 292 (o.a.) × 31 feet, 4,100 tons full load. Flasher, Gato and Greenling were lengthened by 13½ feet to 292½ feet while under construction due to heavier propulsion plants and heavier bridge structures.

Nomenclature

The name of SSN 596 was changed from Plunger to Pollack on 28 Apr. 1959 and to Barb on 23 July 1959, when the name of SSN 603 was changed from Barb to Pollack.

Engineering

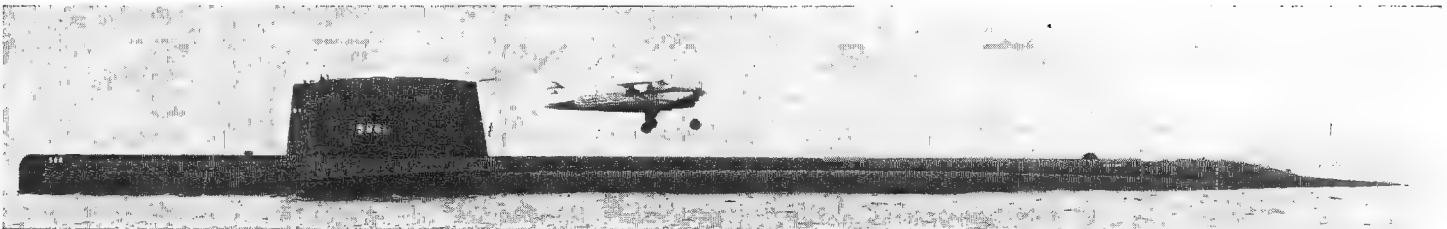
Jack is fitted with two propellers on one shaft, rotating in opposite direction, with one shaft within a larger sleeve-like shaft. Also fitted with a new design counter-rotating turbine without a reduction gear. Both innovations were designed to reduce operating noises. To accommodate the larger turbine the engine spaces are lengthened by ten feet and the shaft structure is seven feet longer to make room for the second propeller. The propellers are of different size and smaller than in other "Thresher" class submarines. There is a ten per cent increase in power efficiency, but no increase in speed over her sister ships.

Photographs

A larger photograph of Permit appears in the 1963-64 and 1964-65 editions.

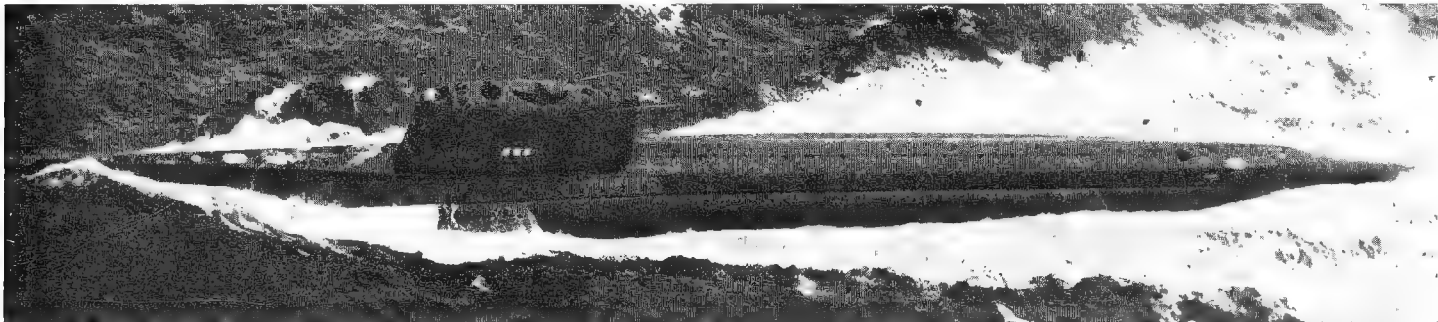
Loss

Thresher, SSN 593, the prototype and name-ship of the class, was lost 200 miles off Boston on 10 Apr. 1963 during deep dive tests with 129 persons on board.



TRITON (despite appearances aircraft is not landing on deck—although the world's longest submarine she is not big enough to land fixed wing aircraft)

Added 1962, Electric Boat Division, General Dynamics Corporation



TRITON (looking down into the "sail")

Added 1961, courtesy General Electric Company, Schenectady (Engineers)

Nuclear Powered Attack Submarine (SSN)
(Ex-Radar Picket Submarine SSRN)
1 Cruiser Type

1 Electric Boat Division, General Dynamics Corporation,
Groton, Conn.
SSN 586 TRITON

Photographs

A large port broadside surface view, a starboard bow oblique aerial view, and a starboard bow surface view appear in the 1960-61 and 1961-62 editions.

Displacement: 5,900 tons standard (7,750 tons submerged)
Dimensions: Length: 447½ feet. Beam: 37 feet. Draught: 24 feet
Tubes: 6—21 inch (4 forward, 2 aft)
Machinery: 2 G.E. pressurised water-cooled S3G nuclear reactors. 2 G.E. geared turbines. 2 shafts. S.H.P.: 34,000=27 kts. surface, 30 kts. submerged
Radius: 110,000 miles without refuelling
Complement: 170 (14 officers and 156 men)

General

The world's largest and most powerfully engined submarine. Provided under the 1956 Naval Appropriations. Originally designed to serve as an early warning station

for task forces and to keep up with the fastest aircraft carriers and destroyers. The first nuclear powered radar picket submarine, the largest submarine ever built, and the first to be powered with two nuclear reactors. Her design emphasised fast surface speed so that she could better accomplish her specialised duties. She has three deck levels within her hull. Laid down on 21 May 1956, launched on 19 Aug. 1958, and commissioned on 10 Nov. 1959. Cost \$100,000,000. She circumnavigated the globe submerged in 1960 for 83 days and 41,500 miles at an average speed of 18 kts. She refuelled in mid-1962 after steaming 110,000 miles.

Reclassification

Triton was reclassified from SSRN to SSN in Mar. 1961.



SCORPION

1962, United States Navy, Official

Nuclear Powered Attack Submarines (SSN)
6 "Skipjack" Class

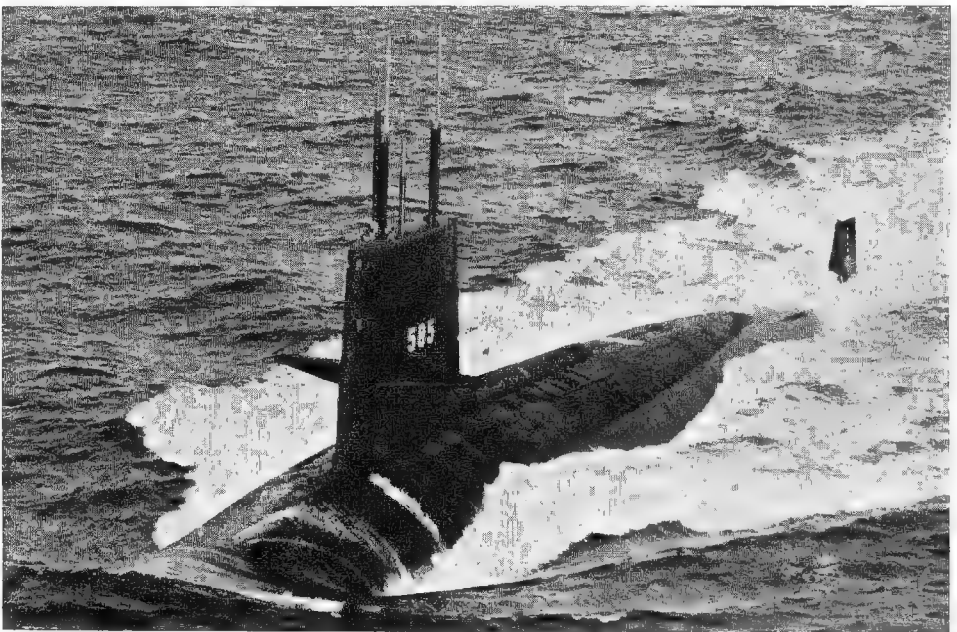
2 Electric Boat Division, General Dynamics Corporation
SSN 585 SKIPJACK **SSN 589 SCORPION**
2 Ingalls Shipbuilding Corp., Pascagoula, Mississippi
SSN 590 SCULPIN **SSN 592 SNOOK**
1 Mare Island Naval Shipyard 1 Newport News Shipbuilding & D.D. Co.
SSN 588 SCAMP **SSN 591 SHARK**

Displacement: 2,830 tons surface (3,500 tons submerged)
Dimensions: 252×32×28 feet
Tubes: 6 bow (24 torpedoes carried)
Machinery: Westinghouse pressurised water-cooled nuclear reactor, Westinghouse geared turbines in Skipjack, G.E. in others. 1 shaft. S.H.P.: 15,000=16 kts. surface, 35 kts. submerged
Radius: 60,000 miles without refueling
Complement: 90 (8 officers, 82 men)

Name	Laid down	Launched	Completed
Skipjack	29 May 56	26 May 58	8 Mar. 59
Scamp	23 Jan. 59	8 Oct. 60	10 Apr. 61
Scorpion	20 Aug. 58	19 Dec. 59	27 June 60
Sculpin	3 Feb. 58	31 Mar. 60	28 Mar. 61
Shark	24 Feb. 58	16 Mar. 60	9 Feb. 61
Snook	7 Apr. 58	31 Oct. 60	4 Nov. 61

General

Skipjack, the prototype of the class, was built under the Fiscal Year 1956 programme and the other five under the 1957 programme. They have the "Albacore" type streamline hull configuration based on the shape of a whale, a "tear-drop nose", and single screw propulsion. They incorporate several novel features, including hydro-wings or diving planes fitted to the "fin" or "sail", as the conning tower is now called,



SKIPJACK

1959, United States Navy, Official

Instead of being encumbered by bow hydroplanes. Maximum depth over 400 feet, Cost \$40,000,000 each. Scorpion set endurance record for sealed atmosphere for 70 consecutive days in 1962.

Engineering

The five-bladed propeller provides maximum speed and manoeuvrability. There are auxiliary diesels for emergency propulsion.



SKATE (first production model nuclear powered submarine)

1963, Electric Boat Division, General Dynamics Corporation

Nuclear Powered Attack Submarines (SSN)

4 "Skate" Class

1 Electric Boat Division, General Dynamics Corporation
SSN 578 SKATE

1 Mare Island Naval Shipyard, California
SSN 583 SARGO

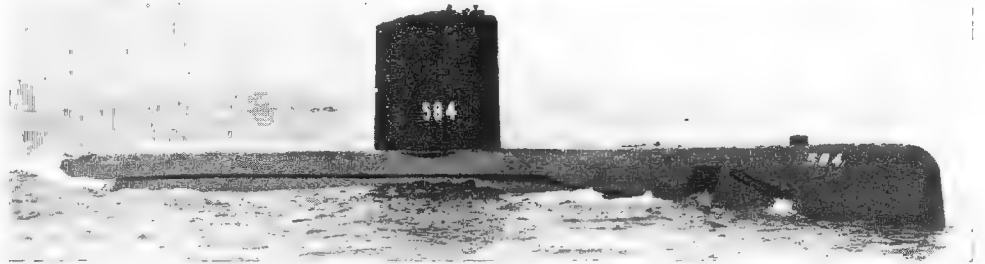
2 Portsmouth Naval Shipyard, New Hampshire
SSN 584 SEADRAGON

SSN 579 SWORDFISH

Displacement: 2,360 tons standard (2,861 tons submerged)
Dimensions: 267½ (o.a.)×25×21½ feet
Tubes: 6—21 inch (2 stern)
Machinery: Westinghouse water-cooled nuclear reactor and geared turbines. 2 shafts. S.H.P.: 6,600 = 15 kts. (surface); 25 kts. (submerged).
Complement: 95 (8 officers, 87 men)

General

Skate was provided under the 1954 F.Y. programme, Swordfish under the 1955, Sargo and Seadrakon under 1956. All have stern diving planes, twin screws and a hull configuration similar to that of Nautilus and Seawolf. On 9 Aug. 1958 Skate completed the second submerged crossing of the North Pole after having held the (then) record of 32 days submerged; and she completed a 12-day sub-Polar cruise, surfacing on



SEA DRAGON

1962, United States Navy, Official

17 Mar. 1959 at the North Pole. She steamed a record of 120,862 miles on her first core and was refueled for the first time after 39 months service in May 1961. She is to undergo 1 year overhaul at Norfolk Naval Shipyard in 1965 to replace radioactive core and make noise reduction alterations. Seadrakon transited Northwest Passage east to west 15—21 Aug. 1960 (Atlantic to Arctic Ocean). Skate commissioned on 23 Dec. 1957, Swordfish on 15 Sep. 1958, and Sargo on 10 Oct. 1958. Swordfish refueled in Feb. 1962 after cruising 112,000 miles since 1968.

Photographs

A port oblique aerial view of Skate appears in the 1958-59 to 1961-62 editions. Photographs of Sargo and Swordfish appear in the 1959-60 to 1962-63 editions.

Name	Laid down	Launched	Completed
Sargo	21 Feb. 1956	10 Oct. 1957	1 Oct. 1958
Seadrakon	20 June 1956	16 Aug. 1958	5 Dec. 1959
Skate	21 July 1955	16 May 1957	31 Jan. 1958
Swordfish	25 Jan. 1956	27 Aug. 1957	1 Oct. 1958

Nuclear Powered Hunter-Killer Submarine (SSN)

1 "Tullibee" Class

1 Electric Boat Division, General Dynamics Corporation
SSN 597 TULLIBEE

Displacement: 2,175 tons standard (2,600 tons submerged)
Dimensions: 261×29×20 feet
Tubes: 4—21 inch amidships
Machinery: Combustion engineering water-cooled SIC nuclear reactor. Westinghouse turbine. Turbo-electric drive. 1 shaft. S.H.P.: 2,500 = 13 kts. (surface), 15 kts. (submerged).
Complement: 56 (6 officers, 50 men)

General

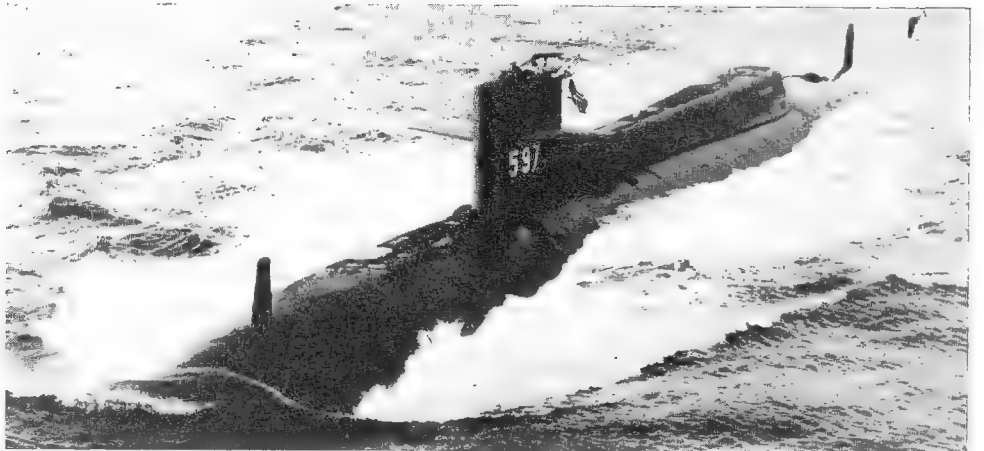
Built under the 1958 programme. Designed as an anti-submarine submarine. Speed secondary to manoeuvrability. "Albacore" type hull. Laid down on 26 May 1958, launched on 27 Apr. 1960 and commissioned on 9 Nov. 1960.

Sonar

Equipped with the latest scientific sonar tracking apparatus, and unique sound-proofing. The placing of the torpedo tubes amidships allows for an unprecedented number of sonar tracking transducers and hydrophones in the bow area which provide "ears" for detecting enemy submarines.

Photographs

A large starboard broadside view of Tullibee appears in the 1961-62 edition.



TULLIBEE

1962, courtesy Mr. W. H. Davis

Design

Her design is based on the shape of a whale, with a bow configuration of "tear-drop" form, and her diving planes project from the "sail" (fin-shaped conning tower).

Engineering

Prototype reactor built by Reactor Division of Combustion Engineering, Windsor, Connecticut. The machinery comprises turbo-electric drive instead of reduction gears as in other nuclear powered submarines.

Nuclear Powered Submarine (SSN) (Ex-Guided Missile Submarine, SSGN)

1 "Halibut" Class

1 Mare Island Naval Shipyard, California

SSN 587 HALIBUT

Displacement: 3,650 tons standard (5,000 tons submerged)
Dimensions: 350×29½×21½ feet
Tubes: 4—21 inch
Machinery: Westinghouse water-cooled nuclear reactor. 2 Westinghouse geared turbines. 2 shafts. S.H.P.: 6,600 = 18 kts. (surface), 25 kts. (submerged).
Complement: 97 (9 officers, 88 men)

General

Provided under the 1956 programme. Originally designed as diesel powered but announced on 27 Feb. 1956 she would be nuclear powered. She was fitted to handle 5 "Regulus I" sub-sonic cruise, 560 miles range missiles. The U.S. Navy's first guided missile, nuclear powered submarine and the first ever designed from the keel up as a guided missile carrier. Her hull was designed primarily to provide a stable launching platform, rather than for speed or manoeuvrability. Laid down on 11 Apr. 1957, launched on 9 Jan. 1959, and commissioned on 4 Jan. 1960. Cost: \$45,000,000.

Reclassified as SSN in 1965 without conversion. Guided missile equipment removed.



HALIBUT (first guided missile nuclear-powered submarine)

1960, United States Navy, Official



SEAWOLF

1963, Electric Boat Division, General Dynamics Corporation

Prototype Nuclear Powered
Submarines (SSN)
2 Experimental Types

2 Electric Boat Division, General Dynamics Corporation
SSN 575 SEAWOLF

Displacement: 3,260 tons standard (4,110 tons submerged)
Dimensions: 338 (o.a.)×29×22 feet
Tubes: 6—21 inch
Machinery: Water-cooled nuclear reactor (see Engineering). G.E. geared turbines. S.H.P.: 15,000=19 kts. (surface) 22 kts. (submerged)
Range: 70,000 miles cruising
Complement: 105 (10 officers, 95 men)

General
Seawolf was ordered on 19 July 1952. First trials were carried out on 21 Jan. 1957. Building dates in table below.

Engineering
The original G.E. sodium cooled intermediate reactors were replaced by Westinghouse water-cooled reactors similar to those installed in the Nautilus. She steamed 71,609 miles in 23 months on her first, sodium-cooled, core. She underwent her reactor conversion at the Electric Boat Division of the General Dynamics Corporation, Groton, Connecticut, at a cost of \$20,000,000. Conversion work started on 13 Dec. 1958, lasting 11-13 months, and she recommissioned on 30 Sep. 1960.

Endurance
Nautilus made the first submerged crossing of the North Pole on 3 Aug. 1958. Seawolf made the record when she remained submerged for 60 days in the Atlantic from 6 Aug to 6 Oct. 1958, cruising 15,700 miles.



NAUTILUS

1962, Wright & Logan

SSN 571 NAUTILUS

Displacement: 3,180 tons standard (3,747 tons submerged)
Dimensions: 319½ (o.a.)×28×25½ feet
Tubes: 6—21 inch
Machinery: Westinghouse pressurised water-cooled reactor and geared turbines. 2 shafts. S.H.P.: 15,000=20 kts. surface, 23 kts. submerged
Range: 40,000 miles
Complement: 104 (10 officers, 94 men)

General
Nautilus commissioned on 30 Sep. 1954 and carried out first trials on 17 Jan. 1955. Designed to travel faster under water than on the surface. Her prow is bulbous to obtain better underwater performances compared with conventional submarines designed for top speed on the surface and which have knife blade prows. Diving depth 700 feet. The world's first nuclear powered ship.

Engineering

Nautilus has three engine room levels with propulsion by atomic power, diesels or electric motors. She refuelled for the first time in 1957 after 26 months and travelling 69,138 miles on the original core of enriched uranium. The second reactor was pulled and replaced in 1959 during routine overhaul after 26 months and steaming 93,000 miles, of which 78,885 was under water.

Photographs

Aerial and surface port bow views of Nautilus appear in the 1955-56 to 1957-58 editions, and a starboard quarter oblique surface view in the 1958-59 to 1961-62 editions. A port bow surface view of Seawolf appears in the 1957-58 to 1960-61 editions. A photograph of Seawolf and Nautilus together appears in the 1957-58 to 1962-63 editions.

Name	Laid down	Launched	Completed
Nautilus	14 June 1952	21 Jan. 1954	22 Apr. 1955
Seawolf	15 Sep. 1953	21 July 1955	30 Mar. 1957



GRAYBACK

1963, United States Navy, Official

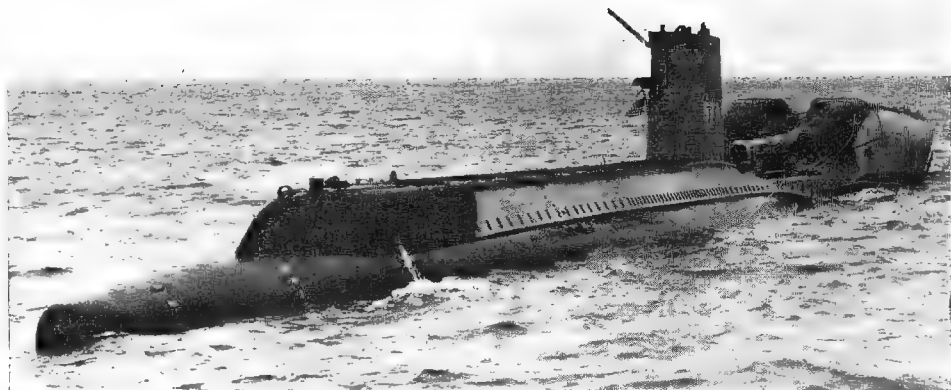
Transport Submarines (APSS)
(Ex-Guided Missile Submarines, SSG)
2 "Grayback" Class

1 Mare Island Naval Shipyard 1 Portsmouth Naval Shipyard

APSS	APSS
574 GRAYBACK	577 GROWLER
Displacement:	Grayback 2,980 tons surface, 3,638 tons submerged. Growler 2,174 tons surface, 3,387 tons submerged
Dimensions:	Grayback: 332½×30×17½ feet Growler: 317½×27½×17 feet
Machinery:	3 Fairbanks Morse diesels. 2 shafts. S.H.P.: 3,100=20 kts. surface. Elliott electric motors=18 kts. submerged
Complement:	67 (7 officers, 60 men)

General
A streamlined type with a conventional engine of improved design, Grayback was built under the 1953 Fiscal Year programme and Growler under the 1955 programme. Originally intended to be attack submarines, but it was announced on 27 Feb. 1956 that they would be completed as guided missile submarines.

Missile Operation
Grayback was the first submarine built expressly with guided-missile capability. Other submarines had been converted with deck-top hangars to fire "Regulus", but Grayback was the first constructed to carry and fire "Regulus" with her missile capability built in. Twin cylinder-shaped hangars, faired into the upper hull forward, contained the missiles. Immediately aft of the hangars was the launching platform from which "Regulus" was fired. The missile hangars gave a slightly different hull conformation, an improvement over the



GROWLER

1959, United States Navy, Official

"Tang" class fast attack submarines and streamlined to assure high underwater speed. The SSG had all the usual offensive capabilities of an attack submarine, including extensive anti-submarine warfare equipment and performance characteristics equal to the most modern non-nuclear attack submarine. She could surface at any time and automatically slide the "Regulus" missile from a cell buried in her hull into firing position. Within moments after surfacing she could fire the missile, then dive immediately. Strong seas and winds and foul weather did not handicap the missile firings.

Conversion

Grayback is being converted into a Transport Submarine and her missile capability removed under the Fiscal Year 1965 Conversion Programme at Mare Island Naval Shipyard at a cost of \$15,200,000. She will carry conventional torpedoes and transport 60 troops. Growler was decommissioned to reserve in 1964 and is awaiting similar conversion.

Name	Laid down	Launched	Completed
Grayback	1 July 1954	2 July 1957	31 July 1958
Growler	15 Feb. 1955	5 Apr. 1958	15 Dec. 1958

Submarines — continued

High Speed Attack Submarines (SS)

3 "Barbel" Class

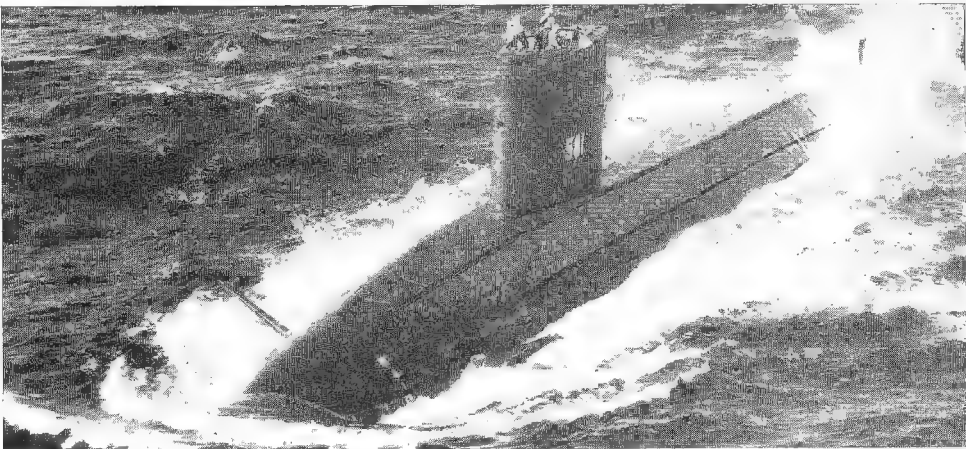
I Portsmouth Naval Shipyard, New Hampshire
SS 580 BARBEL

I Ingalls Shipbuilding Corporation, Pascagoula, Mississippi
SS 581 BLUEBACK

I New York Shipbuilding Corporation, Camden, New Jersey
SS 582 BONEFISH

Displacement:	1,750 tons surface, 2,637 tons submerged		
Dimensions:	219 × 29 × 19 feet		
Tubes:	6—21 inch		
Machinery:	3 Fairbanks Morse diesels. Electric drive. 1 shaft. S.H.P.: 3,100 = 15 kts. surface, 25 kts. submerged		
Complement:	77 (8 officers, 69 men)		
Name	Laid down	Launched	Completed
Barbel	18 May 1956	19 July 1958	1 Apr. 1959
Blueback	15 Apr. 1957	16 May 1959	3 June 1960
Bonefish	3 June 1957	22 Nov. 1958	11 July 1959

General
Provided under the 1956 Naval Appropriations. They have the "Albacore" type hull configuration. The bow



BLUEBACK

1964, United States Navy, Official

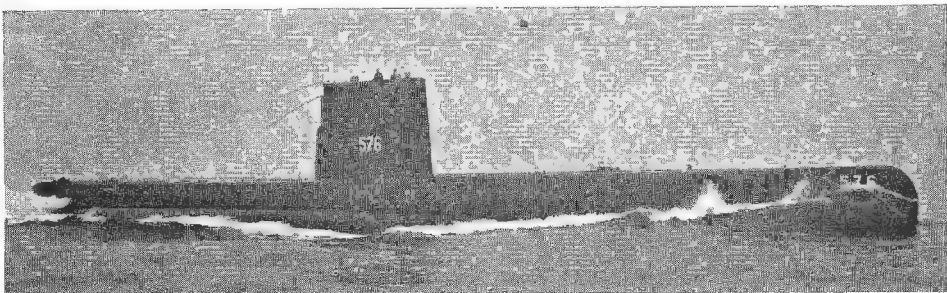
planes in Barbel (photograph in the 1959-60 to 1963-64 editions) now extend from the "sail". The e were the last conventionally powered submarines to join the United States Fleet.

I Improved "Tang" Class

SS 576 DARTER

Displacement:	1,720 tons surface, 2,388 tons submerged
Dimensions:	268½ × 27½ × 19 feet
Tubes:	8—21 inch (6 bow, 2 stern)
Machinery:	Fairbanks Morse diesels. 2 shafts. S.H.P.: 4,000=17 kts. (surface); Elliott electric motors=25 kts. (submerged)
Complement:	83 (8 officers, 75 men)

General
Designed for significantly higher submerged speed. An exceptionally quiet submarine. Equipped with snorkel. Built by Electric Boat Division, General Dynamics Corporation. Laid down on 10 Nov. 1954. Launched on 28 May 1956. Commissioned on 20 Oct. 1956.



DARTER

1958, U.S. Navy, Official

Attack Submarines (SS)

Ex-Radar Picket Submarines (SSR)

2 "Sailfish" Class

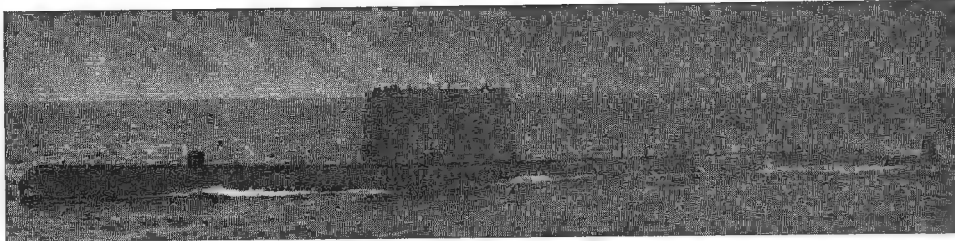
SS 572 SAILFISH

SS 573 SALMON

Displacement:	2,425 tons surface, 3,168 tons submerged
Dimensions:	350½ (o.a.) × 29 × 16½ feet
Tubes:	6—21 inch (forward). 12 torpedoes stowed
Machinery:	Fairbanks Morse diesels. 2 shafts. S.H.P.: 6,000=20.5 kts. surface; Elliott electric motors=15 kts. submerged
Complement:	96 (11 officers, 85 men)

General
Ordered on 27 Feb. 1952. Built by Portsmouth Naval Shipyard. Commissioned on 14 Apr. 1956 and 25 Aug. 1956, respectively. Fitted with air control centre.

Name	Laid down	Launched	Completed
Sailfish	8 Dec. 1953	7 Sep. 1955	Sep. 1956
Salmon	10 Mar. 1954	25 Feb. 1956	Dec. 1956



SAILFISH

1965, United States Navy, Official

Conversion
In 1959 Salmon was modified, at the expense of some search radar, to serve as a missile guidance submarine as well as a radar picket. The deck mounted radar was removed in 1961. Both underwent FRAM II conversion in Fiscal Year 1964.

Reclassification
Both were reclassified from SSR to SS in Mar. 1961.

Photographs
A photograph of Salmon appears in the 1959-60 to 1964-65 editions.

High Speed Test Submarine (AGSS)

I Experimental Prototype

AGSS 569 ALBACORE

Displacement:	1,218 tons surface, 1,847 tons submerged
Dimensions:	204 (o.a.) × 27½ × 18½ feet
Machinery:	2 G.M. diesels, radial pancake type = 25 kts. surface; 1 Westinghouse electric motor. 1 shaft S.H.P.: 1,700=33 kts. submerged see Conversion
Complement:	52 (5 officers and 47 men)

General
High speed experimental submarine. Built by Portsmouth Naval Shipyard. Laid down on 15 Mar. 1952. Launched on 1 Aug. 1953. Completed on 5 Dec. 1953. Conventionally powered submarine of radical design with new hull form which makes her faster and more manoeuvrable than any other conventional submarine. Officially described as a hydrodynamic test vehicle. Streamlined, whale-shaped without the naval flat-topped deck. Conning tower modelled on a fish's dorsal fin.

Conversion
Phase I (1953): cruciform stern. Phase II (1956): open stern, plastic sonar bow. Phase III (1959): improved sonar system, enlarged dorsal rudder, dive brakes on after sail



ALBACORE

1962, United States Navy, Official

section. Phase IV (1961): Electric drive, contra-rotating motors and 2 propellers rotating about the same axis. A high capacity, long endurance silver zinc battery providing power to drive her at 33 kts. submerged (commenced in Dec. 1962, completed on 20 Feb. 1965). Conversions were carried out at Portsmouth Naval Shipyard.

High Speed Attack Submarines (SS)

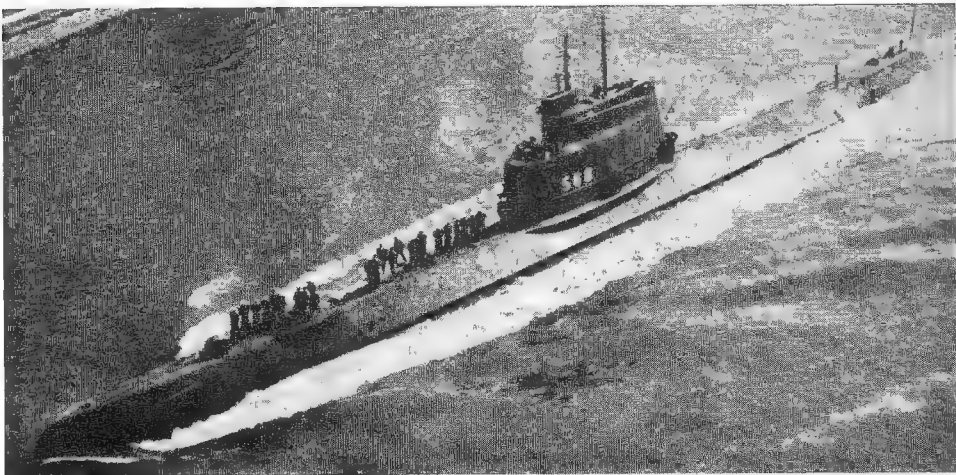
6 "Tang" Class

3 Electric Boat Co., Groton 3 Portsmouth Naval Shipyard

SS	SS
564 TRIGGER	563 TANG
566 TROUT	565 WAHOO
568 HARDER	567 GUDGEON
Displacement:	1,615 tons standard, 1,800 tons surface, 2,400 tons submerged
Dimensions:	269 or 278 (o.a.) x 27½ x 17 feet
Tubes:	8—21 inch (6 bow, 2 stern)
Machinery:	3 Fairbanks-Morse diesels. B.H.P.: 4,200=15 or 20 kts. surface Electric motors. H.P.: 3,200=18 kts. submerged
Oil fuel:	350 tons
Complement:	83 (8 officers, 75 men)

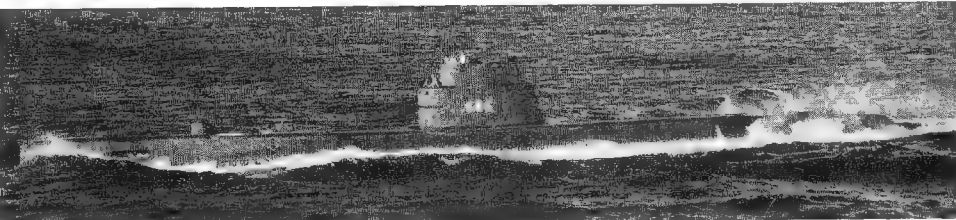
General
This class embodied various improvements based on war experience to give higher submerged speed, with a development of the Schnorkel breathing tubes. They are streamlined deep-diving vessels but have comparatively short hulls. *Trigger* was the first submarine of the post-war programme to be laid down. *Tang* was the first of the new class to be completed (first large submarines to be constructed by the U.S. Navy since the Second World War). The hull is shorter than previous fleet types and this reduction in length is said to contribute to the underwater speed. *Gudgeon* was the first United States submarine to circumnavigate the world during Sep. 1957-Feb. 1958.

Engineering
Tang, *Trigger*, *Trout* and *Wahoo* were originally powered by a compact radial type engine produced after five years of development work, comprising a 16-cylinder 2-cycle plant, mounted vertically with four rows of cylinders radially arranged. These new engines were only half the weight and approximately two-thirds the size of the engines previously available for use in submarines. They proved to be unsatisfactory and were replaced by machinery similar to that in *Gudgeon* and *Harder* which have a Fairbanks-Morse high speed light-weight engine mounted horizontally. The electric motors are Elliott in *Tang* and *Trigger*, General Electric in *Wahoo* and *Trout*, Westinghouse in *Gudgeon* and *Harder*.
Photographs
A photograph of *Trigger* appears in the 1955-56 to 1959-60 editions, and of *Trout* in the 1955-56 to 1960-61 editions.



HARDER

1961, Stefan Terzibaschitsch



WAHOO

1960, United States Navy, Official

Reconstruction

In 1957 *Tang*, *Trigger*, *Trout* and *Wahoo* were provided with an extra centre section, 9 feet long, to accommodate three new Fairbanks-Morse 1,400 B.H.P. "in-line" diesels to replace the "pancake" type. The vessels were cut in halves, the sections inserted, and welded together again.

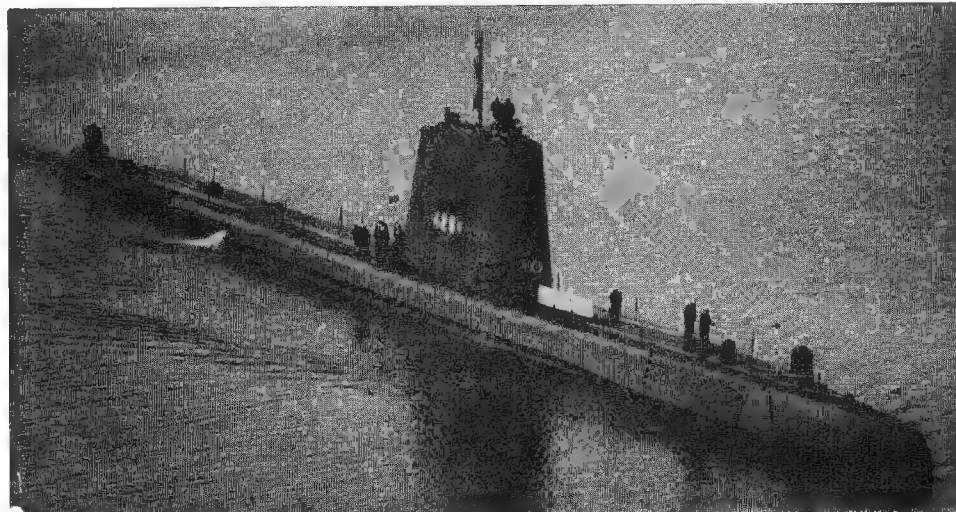
Name	Laid down	Launched	Completed
<i>Gudgeon</i>	20 May 50	11 June 52	21 Nov. 52
<i>Harder</i>	30 June 50	3 Dec. 51	19 Aug. 52
<i>Tang</i>	18 Apr. 49	19 June 51	25 Oct. 51
<i>Trigger</i>	24 Feb. 49	14 June 51	31 Mar. 52
<i>Trout</i>	1 Dec. 49	21 Aug. 51	27 June 52
<i>Wahoo</i>	24 Oct. 49	16 Oct. 51	30 May 52

Submarines (SS)

23 "Tench" Class

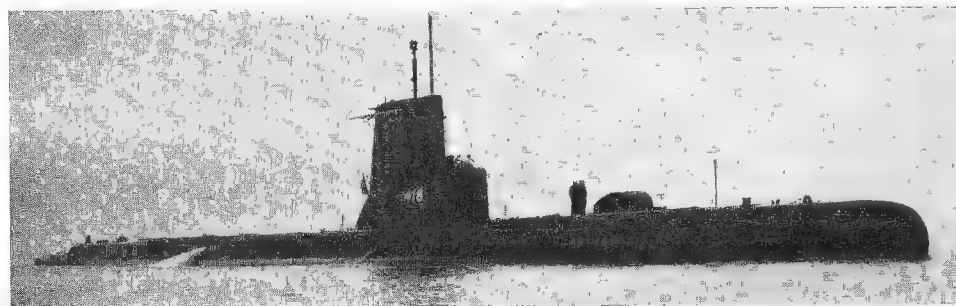
4 Boston Naval Shipyard	SS
G 522 AMBERJACK (15 Dec. 1944)	
G 523 GRAMPUS (15 Dec. 1944)	
G 525 GRENADIER (15 Dec. 1944)	
FG 524 PICKEREL (15 Dec. 1944)	
2 Cramp S.B. Co.	
FG 425 TRUMPETFISH (19 Feb. 1944)	
G 426 TUSK (8 July 1945)	
17 Portsmouth Naval Shipyard	
475 ARGONAUT (1 Oct. 1944)	
G 478 CUTLASS (5 Nov. 1944)	
482 IREX (26 Jan. 1945)	
480 MEDREGAL (15 Dec. 1944)	
G 484 ODAX (10 Apr. 1945)	
G 486 POMODON (6 Dec. 1945)	
G 424 QUILLBACK (ex-Trembler, 1 Oct. 1944)	
FG 487 REMORA (7 Dec. 1945)	
476 RUNNER (17 Oct. 1944) AG	
G 483 SEA LEOPARD (2 Mar. 1945)	
G 485 SIRAGO (5 May 1945)	
G 417 TENCH (7 July 1944)	
G 418 THORNBAC (7 July 1944)	
G 420 TIRANTE (9 Aug. 1944)	
423 TORSK (6 Sep. 1944)	
G 421 TRUTTA (18 Aug. 1944)	
FG 490 VOLADOR (17 Jan. 1946)	
Displacement:	1,570 tons standard, 1,800 tons surface (2,500 tons submerged)
Dimensions:	311 (o.a.), Guppies 306 (length varies); 27½ x 17 feet
Tubes:	10—21 inch (6 bow, 4 stern)
Machinery:	4 diesels. B.H.P.: 6,500=20 kts. (surface). 4 electric motors. S.H.P.: 4,610=10 kts. (submerged). Guppies 15 kts.
Oil fuel:	300 tons
Radius:	14,000 miles at 10 kts.
Complement:	82 (8 officers, 74 men)

General
Enlarged and improved version of the "Balao" class design, able to dive to 100 fathoms. Nearly all fitted with Schnorkel breathing apparatus. *Pickrel*, commissioned on 4 Apr. 1949, made a 5,200 miles run from Hong Kong to Pearl Harbour in 21 days without surfacing in 1950. In 1952 she surfaced at a 48 degree angle from a depth of 150 feet, one of the steepest ever attempted. Both tests were made to evaluate the capabilities and design characteristics of "Guppy" type submarines. *Requin*, *Spinax* and *Tigrone* were converted to Radar Picket Submarines (see later page). *Grenadier* commissioned on 10 Feb. 1951. *Conger* made her 12,000th dive in 1963. *Sarda* made her 13,000th dive in Aug. 1963.
93 more of this class were cancelled during 1944-45. *AG Runner* was reclassified as AGSS in June 1964. *FG FRAM II/GUPPY III* conversions, which include a new 15-ft., 40-ton section with 5-ft. longer "sail." G Units marked G are of the "Guppy" (Greater Underwater Propulsive Power) design equipped with the latest devices. *Argonaut*, *Irex*, *Medregal*, *Runner*, *Torsk* carry snorkels but are not Guppy conversions.



TRUMPETFISH

1965, Stefan Terzibaschitsch



THORNBAC

1964, Wright & Logan

Photographs

Photographs of *Grenadier* and *Odax* appear in the 1957-58 to 1960-61 editions, of *Grampus* in the 1958-59 to 1962-63 editions, and of *Runner* in the 1961-62 to 1964-65 editions.

Transfers

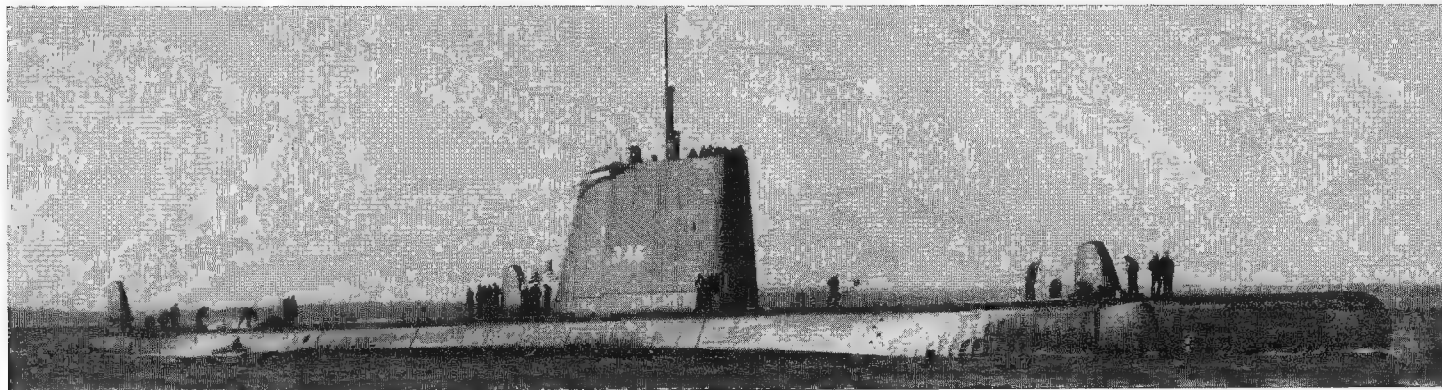
Diablo, AGSS 479, was loaned to Pakistan on 1 June 1964. *Sarda*, AGSS 488 was given to Spain in 1965.

Disposals

The partly constructed *Ulva*, SS 428, used for tests,

was scrapped in 1958. *Unicorn*, SS 436, and *Walrus*, SS 437, suspended after the Second World War, were stricken from the Navy List on 9 June 1958 and scrapped. The partly constructed *Turbot*, SS 427, was used for tests by the Navy Engineering Experimental Station, Annapolis. *Carsbir*, AGSS 435, was stricken from the list in 1963. *Toro*, SS 422, was towed from Philadelphia naval base on 14 May 1963 to be sunk off Cape Cod as a sonar target in an attempt to find the lost *Thresher*. *Conger*, SS 477, was stricken on 1 Aug. 1963 and disposed of as a target. *Sarda*, AGSS 488, was stricken on 1 June 1964.

Submarines—continued



CORPORAL

1965, Wright & Logan

70 "Balao" Class (SS and AGSS)

8 Cramp S.B. Co.

- SS
292 DEVILFISH (30 May 1943) AG
295 HACKLEBACK (30 May 1943) AG
T 297 LING (18 Aug. 1943) AG
T 298 LIONFISH (7 Nov. 1943) AG
300 MORAY (14 May 1944) AG
T 301 RONCADOR (14 May 1944) AG
302 SABALO (4 June 1944)
303 SABLEFISH (4 June 1944)

27 Electric Boat Co.

- 311 ARCHERFISH (29 May 1943) AG
T 310 BATFISH (ex-Acoupa, 3 May 1943) AG
319 BECUNA (30 Jan. 1944)
G 321 BESUGO (27 Feb. 1944) AG
G 322 BLACKFIN (12 Mar. 1944)
G 324 BLENNY (9 Apr. 1944)
331 BUGARA (2 July 1944)
G 334 CABEZON (27 Aug. 1944) T AG
G 323 CAIMAN (ex-Blanquillo, 30 Mar. 1944)
336 CAPITAIN (1 Oct. 1944) AG
337 CARBONERO (15 Oct. 1944)
338 CARP (12 Nov. 1944)
G 339 CATFISH (19 Nov. 1944)
328 CHARR (ex-Bocaccio, 28 May 1944)
G 341 CHIVO (14 Jan. 1945)
G 342 CHOPPER (14 Feb. 1945)
FG 343 CLAMAGORE (23 Feb. 1945)
FG 344 COBBLER (1 Apr. 1945)
FG 346 CORPORAL (10 June 1945)
G 347 CUBERA (17 June 1945)
388 CUSK (28 July 1945)
T 335 DENTUDA (10 Sep. 1944) AG
G 349 DIODON (10 Sep. 1945)
G 350 DOGFISH (27 Oct. 1945)
G 340 ENTEMEDOR (ex-Chiswick, 17 Dec. 1944)
FG 351 GREENFISH (ex-Doncello, 21 Dec. 1945)
G 352 HALBEAK (ex-Dory, 19 Feb. 1946)

4 Manitowoc S.B. Co.

- G 365 HARDHEAD (12 Dec. 1943)
G 368 JALLAO (12 Mar. 1944)
T 374 LOGGHEHEAD (13 Aug. 1944) AG
G 377 MENHADEN (20 Dec. 1944)

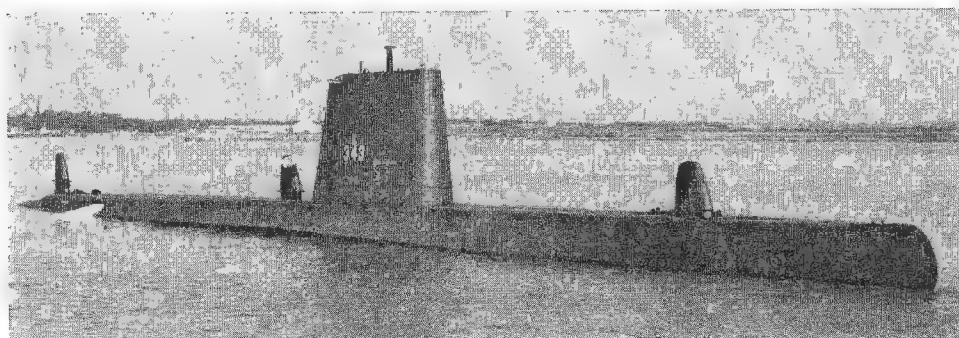
4 Mare Island Navy Yard

- 304 SEAHORSE (9 Jan. 1943) AG
411 SPADEFISH (8 Jan. 1943) AG
FG 416 TIRU (16 Sep. 1947)
T 412 TREPANG (23 Mar. 1944) AG

29 Portsmouth Navy Yard

- 403 ATULE (6 Mar. 1944)
G 385 BANG (30 Aug. 1943)
T 286 BILLFISH (13 Nov. 1942) AG
T 287 BOWFIN (7 Dec. 1943) AG
T 288 CABRILLA (24 Dec. 1942) AG
T 291 CREYALLE (22 Feb. 1943) AG
T 383 PAMPANITO (12 July 1943) AG
T 384 PARCHÉ (24 July 1943) AG
382 PICUDA (ex-Obisto, 12 July 1943)
387 PINTADO (15 Sep. 1943) AG
388 PIPEFISH (12 Oct. 1943) AG
409 PIPER (ex-Awa, 26 June 1944)
389 PIRANHA (27 Oct. 1943) AG
G 391 POMFRET (27 Oct. 1943)
394 RAZORBACK (27 Jan. 1944)
395 REDFISH (27 Jan. 1944) AG
G 396 RONQUIL (27 Jan. 1944)
399 SEA CAT (21 Feb. 1944)
T 401 SEA DOG (28 Mar. 1944) AG
G 402 SEA FOX (28 Mar. 1944)
405 SEA OWL (7 May 1944) SSK
G 406 SEA POACHER (20 May 1944)
407 SEA ROBIN (25 May 1944)
398 SEGUNDO (5 Feb. 1944)
408 SENNET (6 June 1944)
392 STERLET (27 Oct. 1943)
G 410 THREADFISH (ex-Sole, 26 June 1944)

Displacement: 1,526 tons standard, 1,816 tons surface, 2,425 tons submerged
Dimensions: 31½ × 27 × 17 feet (Guppy conversions 309 (o.a.) feet, FG conversions 326½ (o.a.) feet, but length varies) see FG Notes
Tubes: 10—21 inch (6 bow, 4 stern), 24 torpedoes
Machinery: G.M. of Fairbanks-Morse diesels. B.H.P.: 6,500=20 kts. surface. S.H.P.: 4,610 to 5,500=10 to 17-25 kts. submerged
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 80 (8 officers, 72 men)



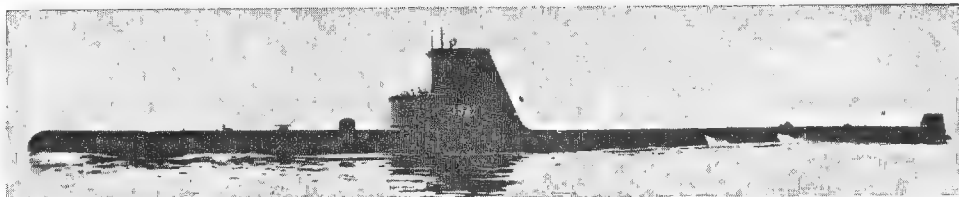
CLAMAGORE

1963, United States Navy, Official



RONQUIL

1962, United States Navy, Official



HALBEAK

Added 1961, Giorgia Arca

General

To facilitate rapid building, all were of the same general type as the "Gato" class, and of all-welded construction. Average time of construction during the war was reduced to nine months. High standard of accommodation, including separate messing and sleeping compartments. War losses: Barbel, Bullhead, Capelin, Cisco, Escobar, Golet, Kete, Lagarto, Shark, Tong, 16 cancelled: Dugong, Eel, Espada, Garloppo, Gauppa, Goldring, Jawfish, Needlefish (379), Nerka, Ono, Turbot, Ulua, Vandance (431), Whitefish, Whiting, Wolfish. Apogon, Pilotfish and Skate were scrapped after being employed as atom bomb targets at Bikini 1946. Sealion and Perch were fitted to carry troops. Burrfish was modified for radar picket duties. Guavina was converted to oiler. Baya was equipped for electronic experiments (see later pages).

G 29 units converted into "Guppies". T 15 training units with torpedo tubes welded shut and propellers removed. AG indicates units reclassified as AGSS. 23 of this class were reclassified from SS to AGSS on 1 Dec. 1962. The reclassification of Cusk to AGSS was cancelled. Carbonero and Cusk converted to SSG, were subsequently reclassified as SS. Barbero was equipped to carry cargo and reclassified ASSA, but was subsequently converted to a guided missile submarine SSG. Bugara, Carbonero, Carp, Charr, Cusk, Piper, Sabalo, Sea Cat, Sea Owl, Segundo, Sennet, Sterlet have snorkels and are Fleet "Guppies." Sea Poacher has a bow similar to that of SSK but is not fitted as SSK. Archerfish is fitted for hydrographic work and is demilitarised.

During her FRAM overhaul Tiru had an additional 12-ft. section added and the conning tower was extended by 5 ft. to provide for an attack centre. Fitted with non-corrodible laminated glass plastic "sail" (conning tower) and superstructure. The overhaul included increased fuel capacity, extra berthing accommodation, advanced electric systems, greater communication capabilities, and the ability to fire new advanced weapons. Tiru was the first submarine to undergo FRAM, (at Pearl Harbour Naval Shipyard). FRAM conversion adds 15 feet to the length and 55 tons to the displacement.

Photographs

Photographs of Carbonero (guided missile on catapult), Cusk (equipped for guided missiles), Redfish and Sea Owl appear in the 1957-58 edition, of Clamagore in the 1957-58 to 1959-60 editions, of Piper in the 1957-58 to 1960-61 editions, of Sea Poacher in the 1958-59 to 1960-61 editions, of Cusk in the 1959-60 to 1961-62 editions, of Carbonero (after conversion from SSG to SS) in the 1960-61 to 1962-63 editions, and of Tiru in the 1961-62 to 1964-65 editions.

Transfers

Blower, SS 325, Blueback, SS 326, Boarfish, SS 327, Chub, SS 329, Brill, SS 330, Bumper, SS 333, to Turkey, and Hawksbill and Icefish to Netherlands in 1953, on loan for five years, Bergall, SS 320, to Turkey in 1958, and Mapiro SS 376, and Mero, SS 378 to Turkey in 1960, Lizardfish, SS 373, to Italy in Jan. 1960, Kraken, SS 370 to Spain in Oct. 1959, Tilefish, SS 307, to Venezuela in 1960, Lamprey, SS 372, to Argentina on 21 July 1960, and Macabi, SS 375, to Argentina, Springer, SS 414 to Chile on 23 Jan. 1961, Burrfish, SS 312, reclassified SS in Mar. 1961, to Canada on 11 May 1961, on loan for five years, Sp t, SS 413, to Chile on 12 Jan. 1962 on loan for five years. Alice, SS 390, and Sand Lance, SS 381, to Brazil in Aug. 19-3, and Scabbardfish, SS 397, to Greece on 26 Feb. 1965.

Losses

Cochino sank off northern Norway on 26 Aug. 1949. Stickleback sank off Pearl Harbour, after ramming by destroyer escort Silverstein on 29 May 1953.

Disposals

Lancefish, suspended at end of Second World War, was stricken on 9 June 1958 and scrapped. Dragonet, SS 293, was stricken in 1961 and expended as a target. Aspro, AGSS 309 was stricken in Sep. 1962. Queenfish, AGSS 393, was stricken on 1 Mar. 1963 and disposed of as a target, and Spikefish, SS 404, was stricken on 1 May 1963 and expended as a target on 4 Aug. 1964. Balao, AGSS 285, was stricken in Sep. 1963, and Sea Devil, AGSS 400 on 1 Apr. 1964.

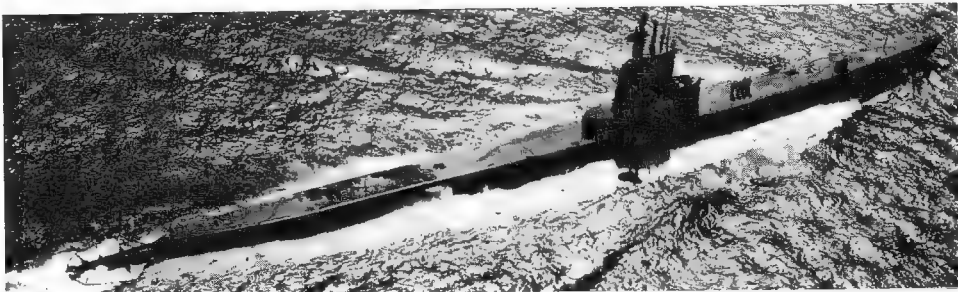
Ex-Radar Picket Submarines

3 Converted "Tench" Class

3 Portsmouth Naval Shipyard
SS AGSS
481 REQUIN (1 Jan. 1945) 419 TIGRONE
489 SPINAX (20 Nov. 1945) (20 July 1944)

Displacement: 1,570 tons standard, 1,800 tons surface (2,500 tons submerged)
Dimensions: 312 (o.a.) × 27 × 17 feet
Tubes: 6—21 inch forward
Machinery: Diesels. B.H.P.: 6,500=20 kts. surface. Electric motors. H.P.: 2,750=10 kts. submerged
Oil fuel: 300 tons
Radius: 14,000 miles at 10 kts.
Complement: 80

General
Before conversion into Radar Picket Submarines, SSR, these vessels were conventional fleet submarines of the "Tench" class, see earlier page. Spinax was laid down on 14 May 1945. Tigrone was completed on 21 Feb.



SPINAX

1965, United States Navy, Official

1949. Launch dates above. Units vary in detail. Guns were removed. In 1959 the Requin and Spinax had their big radar antennae and complicated conning tower and air-control centre removed and they were fitted with a streamlined conning tower. All three were reclassified from SSR to SS on 15 Aug. 1959. Tigrone was reclassified as AGSS on 1 Dec. 1963.

Photographs
Of Tigrone in 1952-53 to 1957-58 editions, and of Requin in the 1953-54 to 1961-62 editions.
Transfer
Burrfish, SSR 312, reclassified as SS in Mar. 1961, was transferred to the Royal Canadian Navy on 11 May 1961, on loan or five years, and renamed Grilse.

4 Converted "Gato" Class

4 Manitowoc S.B. Co.
AGSS AGSS
269 RASHER 272 REDFIN
270 RATON 274 ROCK

Displacement: 1,750 tons standard, 1,800 tons surface (2,500 tons submerged)
Dimensions: 343 × 27 × 17 feet
Machinery: G.M. 2-stroke diesels. B.H.P.: 6,500=21 kts. (surface). Electric motors. H.P.: 2,750=10 kts. (submerged)
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 85

General
Before conversion into Radar Picket Submarines, SSR, these were conventional submarines of the "Gato" class, see later page. They were cut in two to permit the installation of new electronic equipment. Two new mid-sections lengthened them by 31 feet from their original 311½ feet and increased their displacement from their original 1,525 tons. Redfin re-commissioned 9 Jan. 1953, Rock 12 Oct. 1953. Redfin was reclassified from SSR to SS in 1959 and to AGSS in June 1963, and Rasher, Raton, and Rock to AGSS in 1960.

Name	Laid down	Launched	Completed
Rasher	4 May 1942	20 Dec. 1942	8 June 1943
Raton	29 May 1942	24 Jan. 1943	13 July 1943
Redfin	3 Sep. 1942	4 Apr. 1943	31 Aug. 1943
Rock	23 Dec. 1942	20 June 1943	26 Oct. 1943

Disposals
Pompon, SSR 267, and Ray, 271, were stricken from the Navy List at the end of 1960.



REDFIN

1961, United States Navy, Official

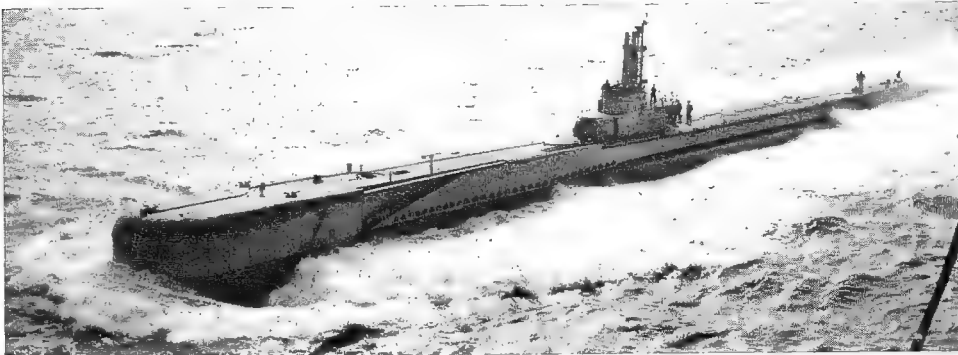
Experimental Submarines (AGSS)
2 Converted "Balao" Class

AGSS 318 BAYA AGSS 299 MANTA

Name: Baya Manta
Builders: Electric Boat Cramp
Div.: Groton Shipbuilding Co.
Laid down: 8 Apr. 1943 15 Nov. 1942
Launched: 2 Jan. 1944 7 Nov. 1943
Completed: 20 May 1945 20 Jan. 1945

Displacement: 1,526 tons standard, 1,900 tons surface (2,625 tons submerged)
Dimensions: 311½ (o.a.), Baya 334½ (o.a.) × 27 × 17 feet (see Reconstruction)
Machinery: Diesels. B.H.P.: 6,500=20 kts. surface. H.P.: 2,750=15 kts. submerged
Oil fuel: 300 tons
Boilers: 12,000 miles at 10 kts.
Complement: 78

General
Were of "Balao" class before conversion. Employed experimentally. Baya was converted to a laboratory submarine for electronic experiments and Manta to a target submarine the torpedo tubes being rendered inoperative. No guns. Manta is assigned to Naval Reserve training.



BAYA (round prow pushes water away at high speeds)

1960, courtesy "Our Navy"

Reconstruction
In 1958-59 Baya was cut in two at the San Francisco Naval Shipyard and a 23-ft. section inserted amidships between the forward torpedo room and the forward battery room. She was fitted with a bigger and blunter bow to house electronic gear, two booms to act as sonar

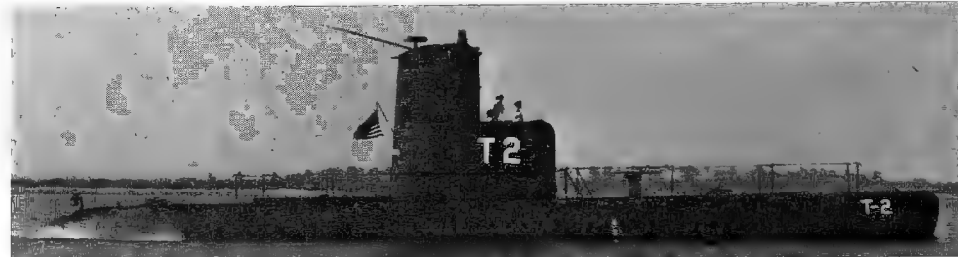
antennae when extended, a mushroom anchor in the bottom of the submarine in a recess built into the hull, living quarters for 12 research laboratory scientists, and a LORAD anti-submarine detection system (long range). In 1960 she was assigned to the operational test and evaluation force.

Target and Training Submarines
(SST)
2 "T" Class

1 Electric Boat Co., Groton 1 Portsmouth Naval Shipyard
SST SST
1 MACKEREL (ex-T 1, ex-AGSS 570) 2 MARLIN (ex-T 2)

Displacement: 250 tons standard, 303 tons surface (347 tons submerged)
Dimensions: 131½ (o.a.) × 13½ × 12½ feet
Tubes: 1 forward
Machinery: G.M. diesels. 1 shaft. Elliott electric motors. S.H.P.: 1,050=10 kts. surface and submerged
Oil fuel: 18 tons
Radius: 2,000 miles at 10 kts.
Complement: 18 (2 officers, 16 men)

General
Marlin was ordered on 17 Mar. 1951. Smallest submarine



MARLIN

1965, United States Navy, Official

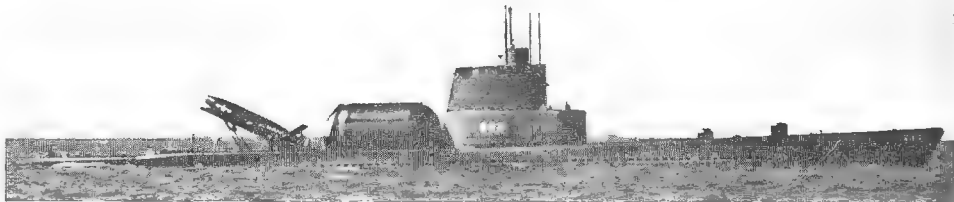
built for 47 years. Useful in landing raiding parties. Same general appearance as "Guppy" type submarines. Mackerel was ordered on 5 Jan. 1952. Classification SST and former name T1 superseded AGSS 570, the classification and number originally assigned to Mackerel. For training surface and air anti-submarine forces. Renamed in 1956, Cost \$3,000,000 each.

Photographs
A photograph of Mackerel appears in the 1955-56 to 1964-65 editions.
Name Laid down Launched Completed
Mackerel 12 May 1952 14 Oct. 1953 28 Nov. 1953
Marlin 1 Apr. 1952 17 July 1953 9 Oct. 1953

Guided Missile Submarine (SSG)
I Converted "Gato" Class

SSG
282 TUNNY
Builders: Mare Island Naval Shipyard
Laid down: 10 Nov. 1941
Launched: 1 July 1942
Completed: 1 Sep. 1942
Displacement: 1,525 tons standard, 1,816 tons surface (2,405 tons submerged)
Dimensions: 311½×27×17 feet
Machinery: Diesels. B.H.P.: 6,500=21 kts. (surface). Electric motors, H.P.: 2,750=10 kts. (submerged)
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 81 (9 officers, 72 men)

General
Before conversion was of "Gato" class, see later page. Converted by Mare Island Naval Shipyard, Vallejo, California. She was modified at Pearl Harbour Naval Shipyard to handle the now cancelled "Regulus II" guided missile.
Guided Missiles
Equipped with "Regulus I" guided missiles, 32½ feet long. Fitted with missile guidance equipment. Submarines



TUNNY (Regulus I surface-to-surface guided missile aboard) Added 1959, United States Navy, Official

fitted with missile guidance equipment but not fitted for launching guided missiles are *Cusk*, *Carbonero*, *Torsk*, *Argonaut* and *Runner*.
Disposal
The converted "Balao" class guided missile submarine *Barbero*, SSG 317 (ex-ASSA, ex-SS) was stricken from the Navy List on 1 July 1964 and is to be expended as a target.

Photographs
Sequence photographs of "Regulus I" rolled from the hangar of *Tunny*, being boosted, and soaring towards its target, in the 1957-58 edition. Photograph of *Tunny* showing "Regulus" I" being hauled into deck hangar with another missile already in position, in the 1959-60 edition. Photograph of *Barbero*, showing "Regulus I" in launching position, in the 1959-60 to 1963-64 editions.

Transport Submarines (APSS)
Amphibious Troop-carrying Type
2 Converted "Balao" Class

AP SS 313 PERCH	AP SS 315 SEALION
Name:	<i>Perch</i> <i>Sealion</i>
Builders:	Electric Boat Electric Boat
	Div., Groton Div., Groton
Laid down:	5 Jan. 1943 25 Feb. 1943
Launched:	12 Sep. 1943 31 Oct. 1943
Completed:	7 Jan. 1944 8 Mar. 1944

Displacement:	1,526 tons standard, 1,900 tons surface (2,500 tons submerged)
Dimensions:	311½×27×17 feet
Guns:	2—40 mm. AA.
Machinery:	2 G.M. diesels. S.H.P.: 2,305 = 13 kts. surface. (2 of 4 engines were removed for additional troop space which reduced speed).
Oil fuel:	300 tons
Radius:	12,000 miles at 10 kts.
Complement:	Crew: 74 (6 officers, 68 men). Accommodation for 14 officers 170 men

General
Perch was converted at Mare Island Shipyard in 1948, and *Sealion* at San Francisco Naval Shipyard, to carry 160 troops each. Both vessels were formerly fleet type submarines of "Balao" class, see earlier page. Now classed as "Amphibious Vessels Submarine Transport." (Can carry 160 Marines, Commandos or Frogmen). Conversion of *Sealion* was completed 15 Dec. 1948. Torpedo tubes removed. In 1960 *Perch* was decommissioned and *Sealion* was assigned to Naval Reserve training. Both recommissioned in Oct. and Nov. 1961.



PERCH

1965, United States Navy, Official

Photographs
A photograph of *Perch*, showing amphibious hangar, appears in the 1949-50 to 1959-60 editions, and of *Sealion* in the 1957-58 to 1964-65 editions.

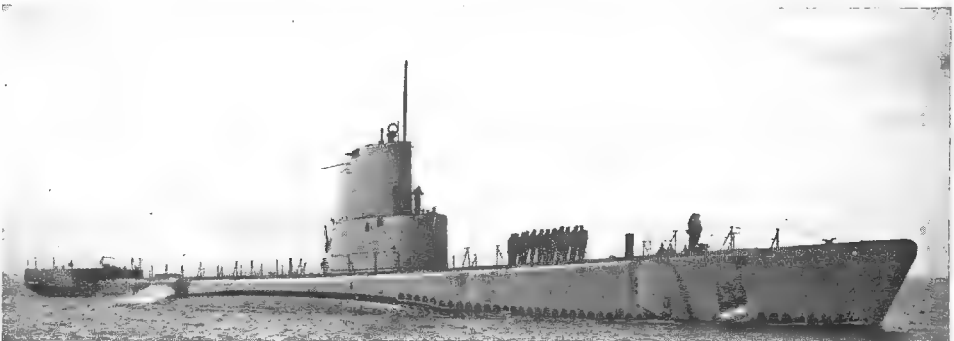
Appearance
The hull bulges out prominently abaft the conning tower.

Disposal
The converted "Gato" class experimental submarine *Flying Fish*, AGSS 229, was scrapped in 1959.

Submarine Oiler
(AOSS, ex-AGSS, ex-SSO)
I Converted "Balao" Class

AOSS
362 GUAYINA
Builders: Manitowoc Shipbuilding Co.
Launched: 29 Aug. 1943
Completed: 23 Dec. 1943
Displacement: 1,750 tons standard, 2,000 tons surface (2,730 tons submerged)
Dimensions: 311½×37×17 feet
Machinery: 4 G.M. diesels. S.H.P.: 4,160=16 kts.
Oil fuel: 300 tons (own fuel)
Radius: 12,000 miles at 10 kts.
Complement: 70

General
Before conversion into a Submarine Oiler, this was a conventional submarine of the "Balao" class, see earlier page. Fitted out at Mare Island Naval Shipyard at a cost of \$2,000,000 with exterior tanks for bulk liquids and special compartments which permit cargo in watertight cases to be discharged while the craft is submerged. Beam increased from 27 to 37 feet. Recommissioned 1 Feb.



GUAYINA

Added 1959, Wright & Logan

1950. Formerly classified as Submarine Oiler, SSO, but later reclassified as AGSS (Auxiliary Submarine), and again reclassified as AOSS on 22 June 1957. Fitted for refuelling seaplanes. Now assigned to naval reserve training with tubes welded shut and propellers removed. To be

inactivated in 1966.
Photograph
Starboard broadside view in the 1955-56 to 1957-58 editions. Starboard quarter view, showing stern tank, in the 1957-58 to 1959-60 editions.

Experimental Deep-Diving
Submarine
I New Construction

AGSS 555 DOLPHIN

Builders: Portsmouth Naval Shipyard
Laid down: 9 Nov. 1962
Launched: 20 Mar. 1965

Displacement: 600 tons surface, 950 tons submerged
Dimensions: 152×18×18 feet
Tubes: Single 21 inch (bow)
Machinery: Diesel-electric, battery systems. 1 shaft
Complement: 22
Cost: \$20,000,000

General
Auxiliary experimental deep-diving submarine with single screw, diesel-electric, battery systems, for special non-nuclear experimental purposes. Authorised under the 1961 programme. Constant diameter pressure hull closed with hemispheres. Superstructure, rudder, fair-water constructed of glass reinforced plastic. HY-80 steel hull permits 2,000 feet operational depth. Scheduled to be commissioned in June, 1965.

Ex-Submarine Hunter Killers
7 Converted "Gato" Class
(AGSS, ex-SS, ex-SSK)

7 Electric Boat Company, Groton, Connecticut

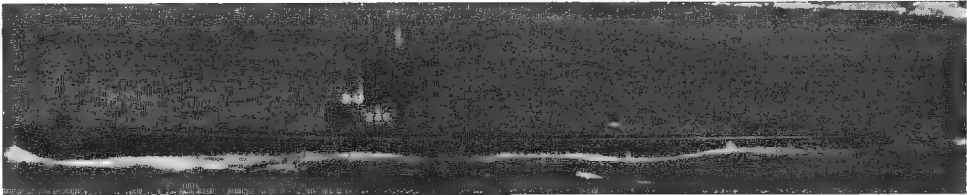
AGSS	AGSS	SS
240 ANGLER	244 CAVALLA	242 BLUE GILL
241 BASHAW	214 GROUPEP	246 CROAKER
243 BREAM		

Displacement: 1,525 tons standard, 1,816 tons surface (2,425 tons submerged)
Dimensions: 311½×27×15 feet
Machinery: Diesels. B.H.P.: 6,500=21 kts. (surface). Electric motors. H.P.: 2,750=15 kts. (submerged)
Oil fuel: 300 tons
Radius: 10,000 miles at 10 kts.
Complement: 80

General
Originally completed as units of the "Gato" class. Grouper was converted and redesignated SSK (Large) in 1950, remainder in 1951-53.

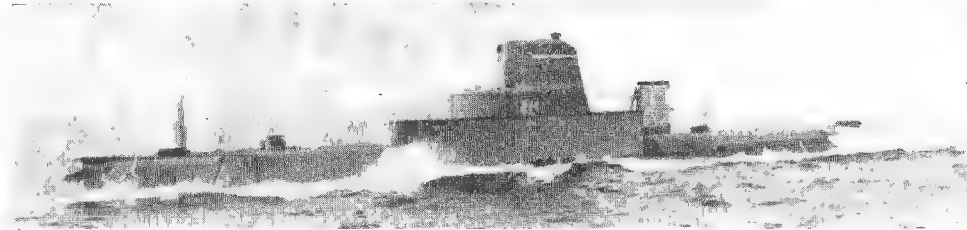
Reclassification
Grouper was again reclassified from SSK to AGSS on 21 June 1958 to carry out experiments for the Underwater Sound Laboratory. Angler, Bashaw, Bluegill, Bream, Cavalla, and Croaker were reclassified from SSK to SS on 15 Aug. 1959. Bashaw was reclassified as AGSS on 1 Sep. 1962, Angler and Cavalla in 1963.
Reclassification of Bream to AGSS was cancelled, but she was reclassified as AGSS on 15 Apr. 1965.
Angler was assigned to naval reserve training in Sep. 1963.

Name	Laid down	Launched	Completed
Angler	9 Nov. 1942	4 July 1943	1 Oct. 1943
Bashaw	4 Dec. 1942	25 July 1943	25 Oct. 1943
Bluegill	17 Dec. 1942	8 Aug. 1943	11 Nov. 1943
Bream	5 Feb. 1943	17 Oct. 1943	24 Jan. 1944
Cavalla	4 Mar. 1943	14 Nov. 1943	29 Feb. 1944
Croaker	1 Apr. 1943	19 Dec. 1943	21 Apr. 1944
Grouper	28 Dec. 1940	27 Oct. 1941	12 Feb. 1942



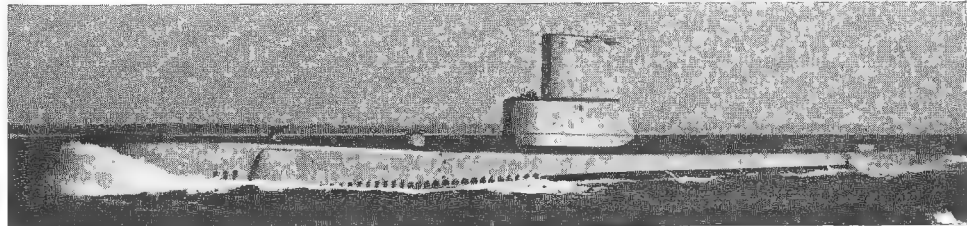
CROAKER

1965, A. & J. Pavia



GROUPEP

1962, courtesy Mr. W. H. Davis



CAVALLA

Added 1961, United States Navy, Official

Experimental
Grouper underwent a seven month overhaul in 1960 which radically altered her appearance. Several new research sonar devices installed for determining underwater sound characteristics in various parts of the world's

oceans. Bow fitted with special large transducers; forward torpedo room converted into a laboratory with test equipment; facilities include berthing for scientists, sonar room. Hydrophones provide for a total of 261 transducers for research purposes.

Submarines (AGSS, ex-SS)
(Naval Reserve Training)
6 "Gato" Class

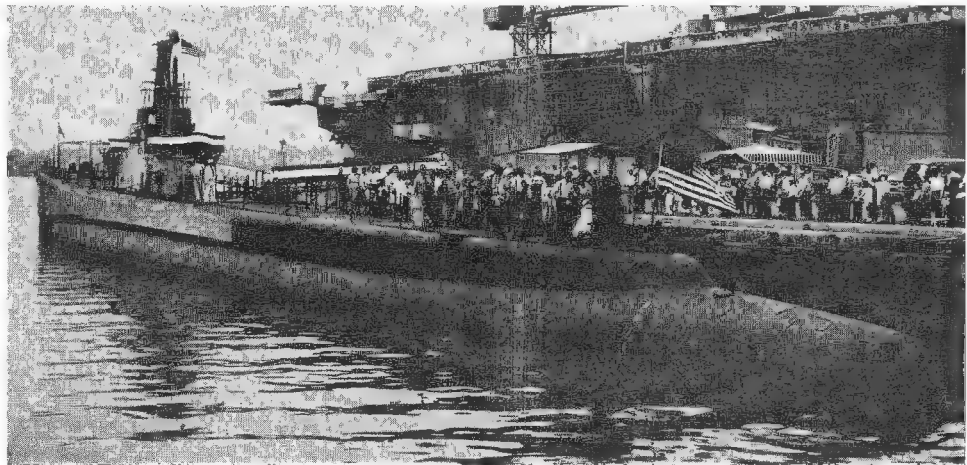
4 Electric Boat Co.	1 Mare Island Navy Yard
AGSS	AGSS
225 CERO	236 SILVERSIDES
245 COBIA	
224 COD	1 Portsmouth Navy Yard
256 HAKE	228 DRUM

Displacement: 1,525 tons standard 1,816 tons surface (2,425 tons submerged)
Dimensions: 311½×27×15 feet
Guns: Removed
Tubes: See General notes
Machinery: G.M. 2-stroke diesels. B.H.P.: 6,500=21 kts. (surface). Electric motors, H.P.: 2,750=10 kts. (submerged).
Oil fuel: 300 tons
Radius: 10,000 miles at 10 kts.
Complement: 85

General
Ordered under the 1939-41 Programmes. Have two engine rooms instead of one as in previous submarines to reduce size of compartments. War losses: Albacore, Amberjack, Bonfish, Corvina, Darter, Dorado, Flier, Growler, Grunion, Harder, Herring, Robalo, Runner, Scamp, Scorpion, Snook, Trigger, Tullibee, Wahoo. All the remaining boats of this class have been assigned to training duties with Naval Reserve units, their torpedo tubes (10-21 inch, 6 bow and 4 stern) having been welded shut and their propellers removed.

Photographs
A photograph of Hake at sea appears in the 1944-45 to 1964-65 editions, and of Silversides in the 1955-56 to 1964-65 editions.

Class
Of this class Grouper was converted to a large submarine hunter-killer (SSK) in 1950 and Angler, Bashaw, Bluegill, Bream, Cavalla and Croaker were similarly converted to anti-submarine submarines (SSK) in 1951-53. Pompano, Rasher, Roton, Ray, Redfin and Rock were converted to Radar Picket Submarines (SSR); and Flying Fish (scrapped in 1959) was converted to an experimental submarine (AGSS). Tunny was converted to a Guided Missile Submarine (SSG) in 1953.



HAKE

May, 1964, Philadelphia, courtesy Dr. Ian S. Pearsall

Name	Laid down	Launched	Completed
Cod	21 July 42	21 Mar. 43	21 June 43
Cero	24 Aug. 42	4 Apr. 43	3 July 43
Drum	11 Sep. 40	12 May 41	23 Dec. 41
Silversides	4 Nov. 40	26 Aug. 41	15 Dec. 42
Cobia	17 Mar. 43	28 Nov. 43	28 Mar. 44
Hake	1 Nov. 41	17 July 42	30 Oct. 42

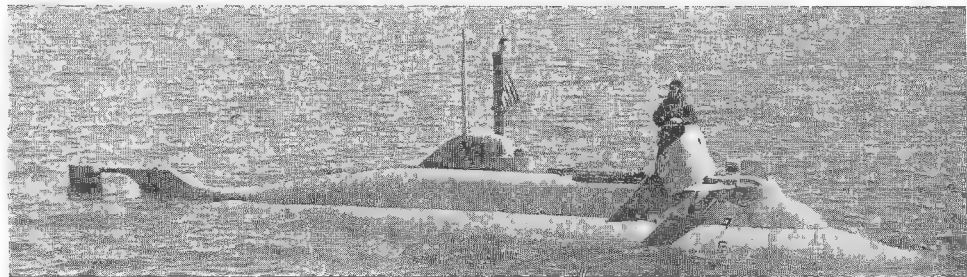
Transfers
Barb, SS 220, and Dace, SS 247, were transferred to Italy in 1954, Guittaro, SS 363, and Hammerhead, SS 364, to Turkey (loans extended for five years in 1959). Mingo, SS 261, to Japan in Aug. 1955 on loan for five years. Muskallunge, SS 262, and Paddle, SS 263, were loaned to Brazil in Jan. 1957, Jack, SS 259, and Lapon, SS 260, to Greece in 1957 (Jack transferred on 21 Apr. 1958, Lapon on 8 Aug. 1957).

Reclassification
All the remaining units of this class were reclassified from SS to AGSS on 1 Dec. 1962.
Disposals
Blackfish, SS 221, Finback, SS 230, Gunnel, SS 253, Haddock, SS 255, Pogy, SS 266, and Tinosa, SS 283, were stricken from the Navy List early in 1959. Bluefish, SS 222, Flasher, SS 249, Flounder, SS 251, and Gabilan, SS 252, late in 1959. Gato, SS 212, Greenling, SS 213, Guardfish, SS 217, Haddock, SS 231, Kingfish, SS 234, Shad, SS 235, Whale, SS 239, Gurnard, SS 254, Hoe, SS 258, Pargo, SS 264, Puffer, SS 268, Sawfish, SS 276, Steelhead, SS 280, and Sunfish, SS 281, in 1960. Peta, SS 265, was sold in Nov. 1960. The hulk of Tinosa was employed for training in submarine salvage operations in the Hawaiian Islands. Gurnard was disposed of in 1961, and Guardfish was expended as a target, in 1961.

I Midget Type (SSX)

SSX I
Displacement: 29 tons standard, 31 tons surface
Dimensions: 36 tons submerged
49½×7×7 feet
Machinery: Diesel. Shaft B.H.P.: 30=8 to 15 (max.) kts. surface. Electric motors=12 kts. submerged
Radius: Over 500 miles
Complement: 8 (2 officers, 6 men) maximum; 4 minimum underway crew

General
Built in 1954-55. In Feb. 1958 an internal explosion severed her hull into three pieces. Rebuilt by Philadelphia Naval Shipyard. Rejoined the Navy on 14 Dec. 1960 for Research Laboratory project on special tests and development. Painted orange, serving at Marine Engineering Laboratory, Annapolis, Md.



X I

1962, United States Navy, Official

Nuclear Midget Project
A nuclear powered midget research submarine is being developed by the Navy and the Atomic Energy Commission.

Length, 60 feet. Speed: 15 knots maximum. Complement: 16. Operating depth: Over 1,000 feet.

Submarines—continued

Ex-Submarine Hunter Killers

3 "Barracuda" Class

- 1 Electric Boat Co.
- 2 Mare Island Naval Shipyard
- SST
- 3 BARRACUDA (ex-K 1)
- SS
- 551 BASS (ex-K 2)
- 552 BONITA (ex-K 3)

Displacement: 765 tons standard, 1,160 tons submerged
Dimensions: 196 (o.a.) × 24½ × 16 feet
Tubes: 4—21 inch
Machinery: 3 G.M. diesels, G.E. electric motors, 2 shafts. S.H.P.: 1,050
= 13 kts. surface and submerged
Complement: 50 (5 officers and 45 men)

General
Medium sized, "extremely quiet," and handy design specifically built for anti-submarine operations. Had letters and numbers instead of names until 15 Dec. 1955 when "B" names were substituted for "K" numbers. Have an ungainly prow, housing listening gear, electronic and sonar detection equipment, short hull, to make them manoeuvrable and suitable for ambushing other submarines. Carry "homing" torpedoes. By 1959 these submarines were considered to be wanting as hunter killer craft. They lack speed, range and endurance. Bass and Bonita will be disposed of in 1965.

Photographs
A photograph of Bonita appears in the 1954-55 to 1961-62 editions, of Barracuda in the 1963-64 edition, and a broadside view of Bass in the 1962-63 and 1963-64 editions.

Name	Laid down	Launched	Completed
Barracuda	1 July 1949	2 Mar. 1951	10 Nov. 1951
Bass	23 Feb. 1950	2 May 1951	11 Jan. 1952
Bonita	17 Mar. 1950	21 June 1951	11 Feb. 1952



BASS

Added 1964, United States Navy, Official

Experimental

Bonita was used as a test ship in the 1958 Atomic Weapons Tests from which only superficial damage was sustained.

Reclassification

In 1959 the Nos. were changed: Barracuda from SSK 1 to SST 3; and Bass and Bonita from SSK 2 and SSK 3 to SS 551, and SS 552, respectively.

AMPHIBIOUS FORCE FLAGSHIPS (AGC)

1 New Construction

AGC 19

Displacement: 18,000 tons
Dimensions: 601 × 83 feet
Guns: 4—3 inch (2 twin)

General
The AGC, authorised in the Fiscal Year 1965 New Construction Programme combines a complex communications system, planning facilities and tactical control areas into one well integrated unit, and provides the facilities for full support for the major commanders involved in the planning and execution of an amphibious assault landing. She is the first Amphibious Force Flagship of post Second World War design.
Building by Philadelphia Naval Shipyard for delivery in Nov., 1968. Another AGC is in the 1966 Programme.

5 "Mount McKinley" Class

AGC

11 ELDORADO (ex Monsoon, 26 Oct. 1943)
12 ESTES (ex-Morning Star, 1 Nov. 1943)
7 MOUNT MCKINLEY (ex Cyclone, 27 Sep. 1943)
16 POCONO (25 Jan. 1945)
17 TACONIC (10 Feb. 1945)

Displacement: 7,510 tons light (15,295 tons full load)
Dimensions: 435 (w.l.), 459½ (o.a.) × 63 × 28½ feet
Guns: 1—5 inch, 38 cal. d.p.; 6—40 mm. AA. (3 twin)
Machinery: Geared turbines, S.H.P.: 6,000
= 16.4 kts.
Boilers: 2 Combustion Engineering type
Complement: 517 (36 officers, 481 men)

General
C2-S-A1 type, but differ. Radar and radio equipment is exceptionally elaborate. Twin 40 mm. guns on extended stern instead of 5 inch, 38 cal., as formerly. Helicopter platform laid over the quarter deck. Pocono and Taconic have single mast instead of after king-post (see photograph).

Flagship Capability
Originally designated as Combined Operations Communications Headquarters Ships, these vessels are fitted as flagships for Chiefs of Combined Forces, with accommodation for Marine and Army units attached.

Photographs
A photograph of Mount Olympus appears in the 1952-53 to 1959-60 editions and of Eldorado in the 1962-63 to 1964-65 editions.

Disposals
Of this class Wasatch (ex-Fleetwing), AGC 9, was stricken on 1 Jan. 1960, Auburn, AGC 10, and Panamint, AGC 13, at the end of 1960, Adirondack, AGC 15, Mount Olympus (ex-Eclipse), AGC 8, and Teton (ex-Witch of the Wave), AGC 14, in 1961.
Of the four of the "Appalachian" class, Appalachian, AGC 1, and Catactin, AGC 5, were stricken from the Navy List on 1 Mar. 1959, and Blue Ridge, AGC 2, and Rocky Mount, AGC 3, on 1 Jan. 1960.

The 1,730-ton yacht Williamsburg, AGC 369, (ex-PG 56, ex-Aras), used as the Presidential Yacht until the end of 1952, was in 1962 transferred to the National Science Foundation for operation by Woods Hole Oceanographic Institution.



POCONO

1965, United States Navy, Official



MOUNT MCKINLEY (helicopter aft)

Added 1964, Giorgio Arca

GUIDED MISSILE SHIP (AVM) and SEAPLANE TENDERS (AV)

4 "Currituck" Class

AVM 1 NORTON SOUND (ex-AV 11, 28 Nov. 1943)
 AV 7 CURRITUCK (11 Sep. 1943)
 AV 12 PINE ISLAND (26 Feb. 1944)
 AV 13 SALISBURY SOUND (ex-Puget Sound, 18 June 1944)

Displacement: 9,106 tons standard (15,092 tons full load)
 Dimensions: 520 (w.l.), 540 (o.a.) \times 69 $\frac{1}{2}$ \times 26 feet
 Guns: 4—5 inch, 38 cal. (none in Norton Sound)
 Machinery: Geared turbines (Parsons in Currituck), Allis-Chalmers in others, 2 shafts, S.H.P.: 12,000—19.2 kts.
 Boilers: 4 Babcock & Wilcox
 Complement: Norton Sound: 531 (38 officers and 493 men)

General

Currituck was built by Philadelphia Navy Yard, others by Todd Shipyards, Los Angeles. Currituck was modernised under the 1957 conversion program at Philadelphia Naval Shipyard and on completion of the refit was commissioned on 20 Aug. 1960. Norton Sound was adapted as the Navy's seagoing rocket laboratory ship and equipped for experiments with guided missiles. Two forward 5-inch guns were removed to make space for helicopter platform; and her stern crane was removed. In 1960 Norton Sound was assigned to the Operational Test and Evaluation Force. She was fitted with a launcher for "Tartar" guided missile testing. In 1963 her "Typhon" conversion began at Maryland Shipbuilding and Drydock Company, Baltimore, Maryland, and she recommissioned on 20 June 1964.

Norton Sound has served as a sea-going test platform for various other missile systems since 1949.

Guided Missile Conversion

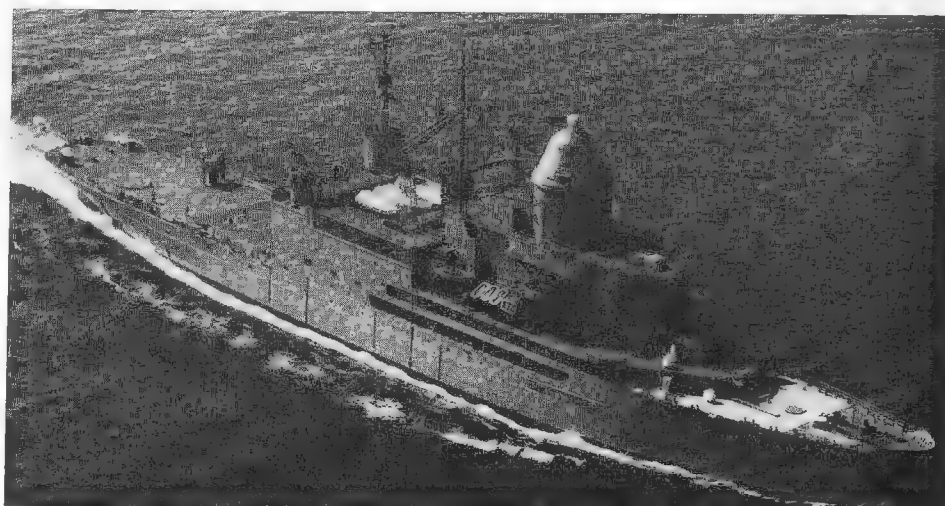
The 1963 conversion provided for the installation in Norton Sound of the prototype "Typhon" air defence system for test and evaluation purposes. This ship-board installation was considered at the time to be a necessary step in the development of the ultimate "Typhon" weapons system which was scheduled for installation in the nuclear powered guided missile frigate of the Fiscal Year 1963 new construction programme. But the "Typhon" weapons system was cancelled as being too bulky, costly, and ineffective. However, the "Typhon" radar system was installed and is now undergoing evaluation. Prototype designed to meet aircraft and missile threats of the 1970s. Single high power radar will automatically and simultaneously search, track, acquire target, and guide missiles. High speed digital computers.

Photographs

A port bow aerial view of Pine Island appears in the 1954-55 to 1959-60 editions.

Disposals of "Kenneth Whiting" Class

Of the "Kenneth Whiting" class Cumberland Sound, AV 17, and Kenneth Whiting, AV 14, were stricken from the List of Naval Vessels in July 1961, and Hamlin, AV 15, and St. George, AV 16, in July 1963.



NORTON SOUND (after conversion)

1965, United States Navy, Official



SALISBURY SOUND

Added 1960, United States Navy, Official

Aeronautical Maintenance Ship

1 "Curtiss" Class

CORPUS CHRISTI BAY, T-ARVH (ex-Albemarle, AV 5)

Displacement: 8,671 tons standard (13,475 tons full load)
 Dimensions: 508 (w.l.), 527 $\frac{1}{2}$ (o.a.) \times 69 $\frac{1}{2}$ \times 21 $\frac{1}{2}$ feet.
 Aircraft: 25
 Machinery: Parsons geared turbines, 2 shafts, S.H.P.: 12,000—19.7 kts.
 Boilers: 4 Babcock & Wilcox Express

General

Built as a large seaplane tender by the New York Shipbuilding Corporation, New Jersey, under the 1937 Fiscal Year Programme, with space for Flag and Fleet Air Wing staffs. Launched on 13 July 1940.

Underwent modernisation and conversion under the 1956 Fiscal Year programme to handle larger seaplanes at Philadelphia Navy Shipyard, and was provided with stern ramps, servicing booms, semi-sheltered area, and a service drydock for seaplanes, being commissioned on 21 Oct. 1957. Decommissioned in 1960, and placed in the custody of the Maritime Administration National Defence Reserve Fleet. Stricken from the Navy List in Sep. 1962. But in Aug. 1964 she was required by the Navy from the Maritime Administration Reserve Fleet for conversion to aeronautical maintenance facility at Charleston Naval Shipyard and completion in Dec 1965 with U.S. Army Helicopter Maintenance Company



ALBEMARLE (before conversion to aeronautical maintenance in Dec. 1965) Added 1965, United States Navy, Official

for employment in S.E. Asia. Renamed U.S.N.S. Corpus Christi Bay and redesignated T-ARVH-1. She is being reactivated and assigned to MSTs with civil service crew: To be equipped to repair small Army aircraft and helicopters at sea or in port, but primarily for such repairs in the Viet Nam area, U.S. Army personnel will man the maintenance and machine shops. See photographs: a large starboard broadside view in the 1958-59 to 1961-62 editions, and a

starboard quarter oblique aerial view in the 1959-60 to 1961-62 editions.

Disposal

Sistership Curtiss (see photograph in the 1957-58 to 1964-65 editions), modified for use by the Atomic Energy Commission was decommissioned to the Reserve Fleet in 1957 and stricken from the Navy List in 1963 and transferred to the Maritime Administration.

1 "Chandeleur" Type

AV 10 CHANDELEUR

Displacement: 9,031 tons standard (14,200 tons full load)
 Dimensions: 492 (o.a.) \times 69 $\frac{1}{2}$ \times 23 $\frac{3}{4}$ feet
 Guns: 1—5 inch, 38 cal., 4—3 inch, 50 cal.
 Machinery: G.E. geared turbines, 1 shaft, S.H.P.: 8,500—18.4 kts.
 Boilers: 2 Foster-Wheeler

General

Launched on 29 Nov. 1941. Maritime Commission type C3-51-B1. Out of commission, in reserve.

Disposals of "Tangier" Class

Both of the seaplane tenders of the "Tangier" Class, Pecomoke, AV 9, and Tangier, AV 8, were stricken from the List of Naval Vessels in June 1961.



CHANDELEUR

Added 1965, United States Navy, Official

AMPHIBIOUS TRANSPORTS DOCK (LPD)



VANCOUVER (broadside view) 1963 (United States Navy, Official (direct from U.S.S. Vancouver, courtesy of Commanding Officer)

Assault Ships. Officially Rated as Amphibious Transports Dock (LPD) 5-5 New Construction "LPD 7" Class

LPD	LPD
7 CLEVELAND	12
8 DUBUQUE	13
9 DENVER	14
10 JUNEAU	15
11 CORONADO	16
Displacement	10,000 tons light (16,900 tons full load)
Dimensions:	Length: 570 (o.a.) feet
	Beam: 84 feet
Guns:	8—3 inch, 50 cal. (4 twin)
Machinery:	Steam turbines, 2 shafts. S.H.P.: 24,000—20 kts.
Complement:	513

General A new class larger than the "Raleigh" class, with the ability to carry both landing craft and transport helicopters together with 840 combat troops and their equipment, and 3,900 tons of cargo; and designed to operate helicopters which will land heavier combat equipment needed by troops landed from the ship and provide landing craft for over-the-beach assault.

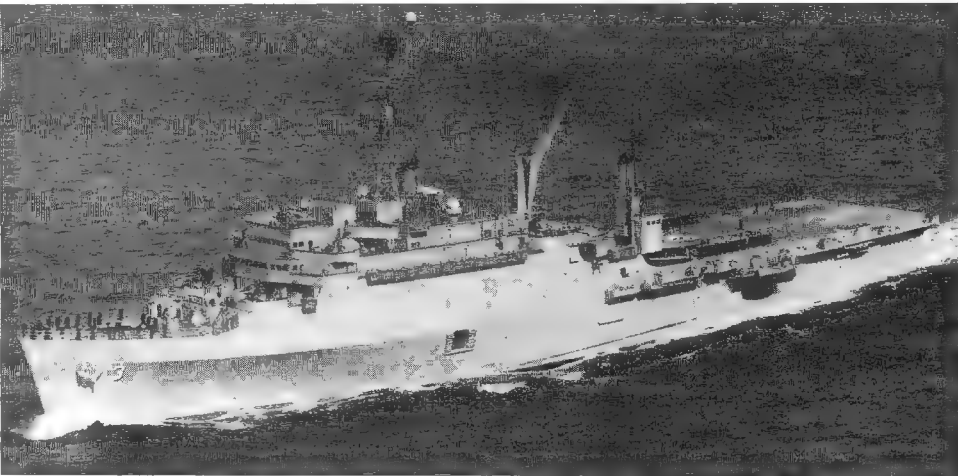
Construction LPDs 7, 8, 9 and 10 were authorised in the Fiscal Year 1963 Programme. LPDs 7 and 8 were the first to be awarded to a private firm, a fixed price contract of \$51,458,000 for the two ships, announced on 25 Jan. 1963. The award of a fixed price contract for LPDs 9 and 10 of \$50,445,000 was announced on 22 May 1963. The construction of three more LPDs (11, 12, 13) was authorised in the 1964 Programme, to cost \$69,774,000 and to be fitted as flagships. Two more (14, 15) were in the 1965 Programme, and one in the 1966 Programme. Lockheed Shipbuilding and Construction Co. was formerly Puget Sound Bridge & Dry Dock Co.

6 "Raleigh" Class

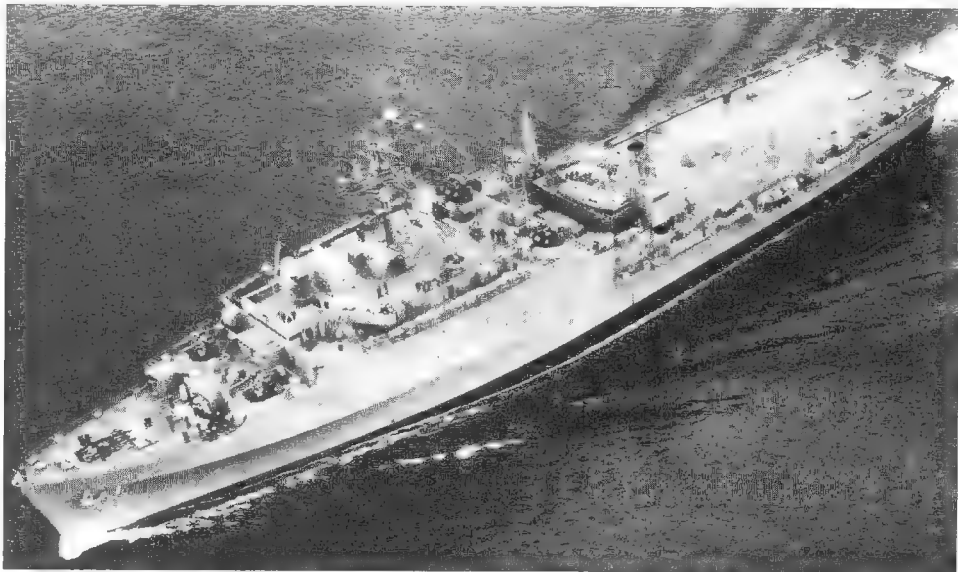
LPD	LPD
1 RALEIGH	4 AUSTIN
2 VANCOUVER	5 OGDEN
3 LA SALLE	6 DULUTH
Displacement:	8,040 tons light (13,900 tons full load)
Dimensions:	Length: 510 feet (w.l.), 522 (o.a.), 535 feet with gates open. Beam: 84 feet
Guns:	8—3 inch, 50 cal. (4 twin)
Aircraft:	6 UH-34 transport helicopters
Landing craft:	1 LCU and 3 LCM (6)s or 6 LCM (6)s
Machinery:	Steam turbines, 2 shafts. S.H.P.: 24,000—23 kts.
Boilers:	2 Babcock & Wilcox
Complement:	490 (30 officers, 460 men)

General Raleigh was the prototype of a new "all purpose" amphibious class, described as excellent ships, which employ the "balanced load" concept. Previous amphibious task forces carried troops in one type of ship, cargo in another, assault craft and tanks in others. These ships carry all these components. In addition they operate troop and cargo-carrying helicopters to project assault forces inland in support of the landing beaches. They have a new type of hull combining features of both an attack transport and an attack cargo ship with the basic hull of the LSDs, but with a shortened and covered well. They carry landing craft in the covered well, the roof of which is a helicopter landing platform, and launch their landing craft from either floating or roll on roll off when in stopped position, or when moving by floating out of the well. Each can accommodate 930 to 1,000 marines and their equipment, and carry 2,000 tons of cargo. Unlike LPHs and LSDs, these ships cannot strike helicopters below. La Salle and later ships have an additional level for flag quarters and command spaces.

Construction Raleigh was authorised in the Fiscal Year 1959 New Construction Programme, and Vancouver in the 1960 Programme. Cost \$29,000,000. La Salle was authorised in the 1961 Programme, Austin, Duluth and Ogden in the 1962 Programme. Cost \$41,400,000.



LA SALLE (extra level for flag quarters and command spaces) 1965, United States Navy, Official



RALEIGH (showing bridge layout) 1964, United States Navy, Official

Nomenclature Amphibious transport docks are named after United States cities the namesakes of which were explorers and developers of America. Some of the names were previously borne by cruisers.

Photographs A starboard bow oblique aerial view of Raleigh appears in the 1963-64 edition, and a port quarter oblique aerial view of Vancouver in the 1963-64 and 1964-65 editions.

Name	No.	Builders	Laid down	Launched	Commissioned
Raleigh	LPD 1	New York Naval Shipyard, Brooklyn	23 June 1960	17 Mar. 1962	8 Sep. 1962
Vancouver	LPD 2	New York Naval Shipyard, Brooklyn	19 Nov. 1960	15 Sep. 1962	11 May 1963
La Salle	LPD 3	New York Naval Shipyard, Brooklyn	2 Apr. 1962	3 Aug. 1963	22 Feb. 1964
Austin	LPD 4	New York Naval Shipyard, Brooklyn	4 Feb. 1963	27 June 1964	6 Feb. 1965
Ogden	LPD 5	New York Naval Shipyard, Brooklyn	4 Feb. 1963	27 June 1964	19 June 1965
Duluth	LPD 6	New York Naval Shipyard, Brooklyn	18 Dec. 1963		
Cleveland	LPD 7	Ingalls Shipbuilding Co. Pascagoula	30 Nov. 1964		
Dubuque	LPD 8	Ingalls Shipbuilding Co. Pascagoula	30 Nov. 1964		
Denver	LPD 9	Lockheed S.B. & Construction Co., Seattle	7 Feb. 1964	23 Jan. 1965	
Juneau	LPD 10	Lockheed S.B. & Construction Co., Seattle	23 Jan. 1965		
Coronado	LPD 11	Lockheed S.B. & Construction Co., Seattle	3 May 1965		
	LPD 12	Lockheed S.B. & Construction Co., Seattle			
	LPD 13	Lockheed S.B. & Construction Co., Seattle			
	LPD 14	Lockheed S.B. & Construction Co., Seattle			
	LPD 15	Lockheed S.B. & Construction Co., Seattle			

FLEET MINELAYER (MMF)

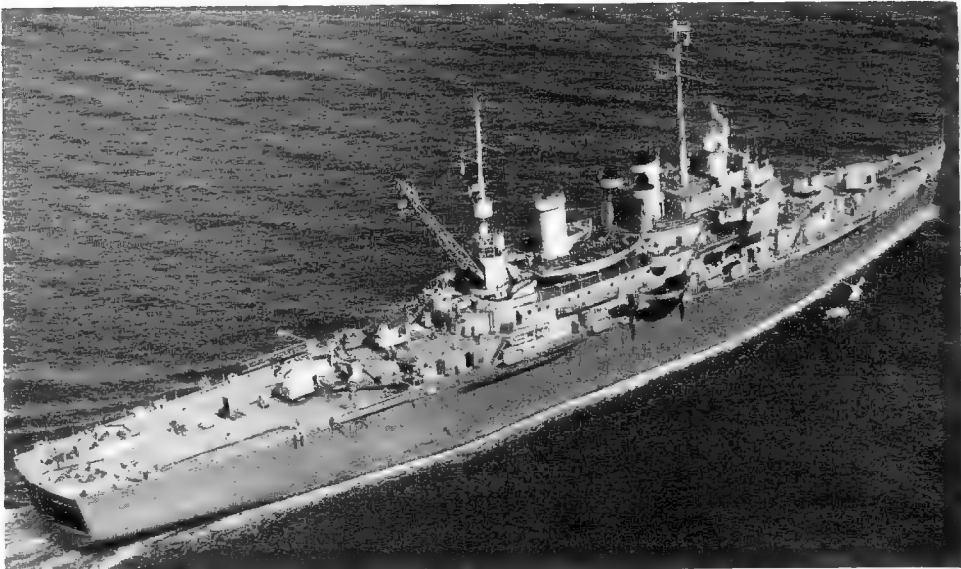
I Large Type
Formerly rated as
Cruiser Minelayer (CM)

MMF 5 TERROR
Builders: Philadelphia Navy Yard
Laid down: 1940
Launched: 6 June 1941
Completed: 1942

Displacement: 5,875 tons standard (8,650 tons full load)
Dimensions: 454 (o.a.) x 60½ x 20 feet
Guns: 4—5 inch. 38 cal. (single); 24—40 mm. AA. (6 quadruple mountings)
Mines: 800 capacity
Machinery: Geared turbines. 2 shafts, S.H.P.: 11,000=20 kts.
Boilers: 4
Radius: 8,000 miles at 15 kts.
Complement: 400 (accommodation for 114 officers, 450 men)

General
Authorized under the 1938 Fiscal Year New Construction Programme. Mine ports in stern. Cruiser type with high freeboard. Out of commission, in reserve.

Reclassification
Formerly classified as a Large (Cruiser) Minelayer (CM) but reclassified as a Fleet Minelayer (MM) in Feb. 1955 and redesignated MMF in 1956.



TERROR

1950, U.S. Navy, Official

MINE COUNTERMEASURES SUPPORT SHIPS (MCS)

2 Converted Large Minelayer Type

MCS
1 CATSKILL (ex-LSV 1, ex-CM 6, ex-AP 106)
2 OZARK (ex-LSV 2, ex-CM 7, ex-AP 107)

Name: Catskill Ozark

Launched: 19 May 1942 15 June 1942
Completed: 30 June 1944 23 Sep. 1944

Displacement: 5,875 tons standard (9,040 tons full load)
Dimensions: 440 (w.l.), 455½ (o.a.) x 60½ x 20 feet
Guns: 2—5 inch, 38 cal. d.p.; 8—40 mm. AA.
Machinery: G.E. geared turbines. 2 shafts. S.H.P.: 11,000=20.3 kts.
Boilers: 4 Combustion Engineering "D" type
Complement: Accommodation for 564 (114 officers, 450 men)

General
Both built by Willamette Iron & Steel Corp., Portland, Oregon, under the 1940 Programme and laid down on 12 July, 1941. Designed as Large Minelayers, but subsequently converted into Landing Ships (Vehicle), LSV. Reclassified as Mine Warfare Command and Support ships and redesignated MCS in 1955. Again reclassified as Mine Countermeasures and Support Ships in 1958, and as Mine Countermeasures Support Ships on 25 Aug. 1960. Stricken from the Navy List on 1 Sep. 1961, but reinstated and converted into the new conception of Mine Countermeasures Support Ships under the Fiscal Year 1964 and 1963 Shipbuilding and Conversion Programmes, respectively.

Conversion
It is officially stated that each conversion of the former Vehicle Landing Ship (LSV) type will be capable of transporting, maintaining, operating and supporting twenty 36-foot minesweeping launches (MSL) and two helicopter minesweepers. These capabilities will provide a high degree of mobility to minesweeping operations. They will be used mainly in forward areas in support of amphibious landing operations. They will be capable of controlling and providing limited support for minesweeping ships and boats, and helicopters.

Disposals
Of the three vessels of the original netlayer type converted into vehicle landing ships, *Saugus*, MCS 4 (ex-LSV 4, ex-AN 4) was stricken from the Navy List on 1 July 1961, and *Monitor*, MCS 5 (ex-LSV 5, ex-AN 5) and *Osage*, MCS 3 (ex-LSV 3, ex-AN 3), were stricken on 1 Sep. 1961.
The netlayer *Galilea* (ex-Montauk), AKN 6 (ex-LSV 6, ex-AN 2, ex-AP 161) was stricken from the Navy List on 1 Sep. 1960.

I LSD Type

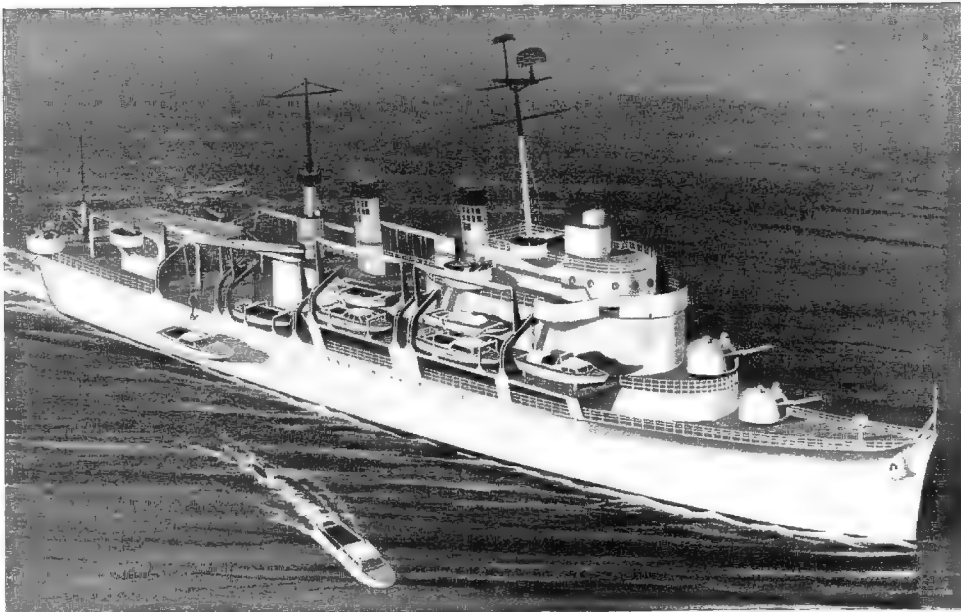
MCS 7 EPPING FOREST

Reclassification
The dock landing ship *Epping Forest*, ex-LSD 4, employed as a mine escort tender in the Far East, see particulars on a later page, was reclassified as MCS 7 on 30 Nov. 1962.

I LST Type

MCS 6 ORLEANS PARISH

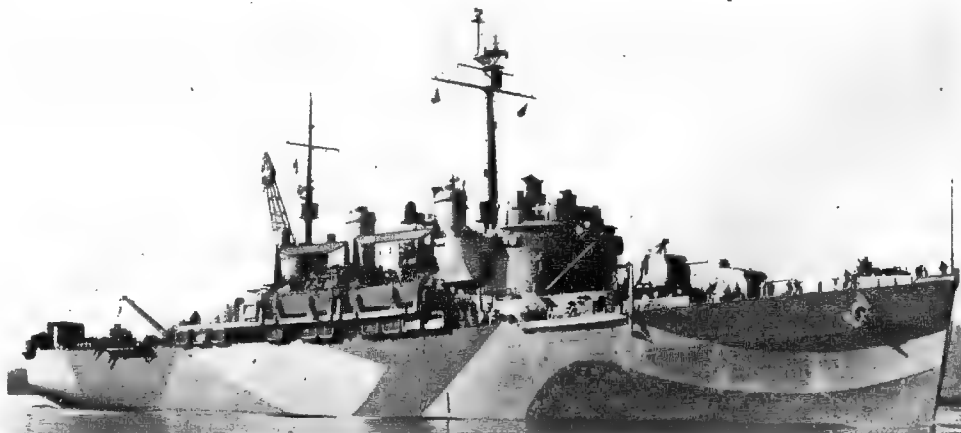
Reclassification
The tank landing ship *Orleans Parish*, ex-LST 1069, see particulars on a later page, was reclassified as MCS 6 on 19 Jan. 1959.



OZARK (conversion design)

1962, United States Navy, Official

Name	Converted By	Reinstated	To Commission
Catskill	Boland Machine & Manufacturing Co. New Orleans, Louisiana	1 June 1964	Apr. 1966
Ozark	Norfolk Shipbuilding & Drydock Corp., Norfolk, Virginia	1 Oct. 1963	Dec. 1965



OZARK (original design)

Wartime Photo, United States Navy, Official

FAST TRANSPORTS (Modified Destroyer Escorts)

Rated as
High Speed Transports (APD)
46 Converted Destroyer Escorts

APD (Ex-DE)

132	716	BALDUCK (27 Oct. 1944)
57	161	BARBER (20 May 1943)
73	672	BASSETT (15 Jan. 1944)
127	711	BEGOR (25 May 1944)
119	722	BEVERLY W. REID (4 Mar. 1944)
48	69	BLESSMAN (19 June 1943)
78	693	BULL (25 March 1943)
133	717	BURDO (25 Nov. 1944)
65	215	BURKE (3 April 1943)
62	208	COFER (6 Sep. 1943)
130	714	COOK (26 Aug. 1944)
38	54	DANIEL T. GRIFFIN (25 Feb. 1943)
123	690	DIACHENKO (15 Aug. 1944)
66	216	ENRIGHT (29 May 1943)
42	60	GANTNER (17 Apr. 1943)
43	62	GEORGE W. INGRAM (8 May 1943)
108	598	HARRY L. CORL (1 Mar. 1944)
80	212	HAYTER (11 Nov. 1943)
86	794	HOLLIS (11 Sep. 1943)
124	691	HORACE A. BASS (12 Sep. 1944)
53	211	HUBBARD (11 Nov. 1943)
72	671	JACK C. ROBINSON (8 Jan. 1944)
74	673	JOHN P. GRAY (18 Mar. 1944)
49	70	JOSEPH E. CAMPBELL (26 June 1943)
110	600	JULIUS A. RAVEN (3 Mar. 1944)
61	207	KEPHART (6 Sep. 1943)
90	229	KIRWIN (16 June 1944)
120	687	KLINE (27 June 1944)
107	591	KNUDSON (5 Feb. 1944)
55	159	LANING (4 July 1943)
60	206	LIDDLE (9 Aug. 1943)
63	209	LLOYD (23 Oct. 1943)
71	670	ODUM (19 Jan. 1944)
70	669	PAVLIC (18 Dec. 1943)
121	688	RAYMOND W. HERNDON (15 July '44)
102	592	REDNOUR (12 Feb. 1944)
92	233	REGISTER (20 Jan. 1944)
100	590	RINGNESS (5 Feb. 1944)
89	228	RUCHAMKIN (15 June 1944)
76	676	SCHMITT (29 May 1943)
122	689	SCRIBNER (1 Aug. 1944)
98	282	Ex-TRUXTUN (9 Mar. 1944)
111	601	WALSH (28 Apr. 1945)
106	596	WALTER B. COBB (23 Feb. 1944)
135	719	WEISS (17 Feb. 1945)
95	236	WILLIAM M. HOBBY (11 Feb. 1944)

Displacement: 1,400 tons standard, (2,130 tons full load)
Dimensions: 300 (w.l.), 306 (o.a.) × 37 × 12½ feet
Guns: 1—5 inch, 38 cal d.p., 4 to 8—40 mm. AA.
A/S weapons: 6 short torpedo tubes (2 triple) amidships in some ships.
Machinery: G.E. geared turbines with electric drive, 2 shafts. S.H.P.: 12,000—23.6 kts.
Boilers: 2 Express
Oil fuel: 350 tons
Radius: 5,500 miles at 15 kts.
Complement: 204 plus 162 troops

General

Former destroyer escorts converted, and officially rated as High Speed Transports. They carry four LCVP (Landing Craft Vehicle-Personnel). War loss: *Bates* (APD 47, ex-DE 68). Three, *Chase* APD 54 (DE 158), *England* APD 41 (DE 635) and *Witter* (APD 58), (DE 636) were scrapped after the Second World War. *Kirwin*, APD 90, recommissioned on 15 Jan. 1965, replacing *Earle B. Hall*, APD 107, decommissioned and stricken.

Modernisation

Ruchamkin, *Weiss* (see photographs above) and others have undergone FRAM conversion.

Flagship Conversion

Laning (55), *Lloyd* (63), *Hollis* (86), *Knudson* (101), *Cavallero* (128), *Cook* (130) and *Balduck* (132) underwent limited conversion into APD flagships with staff quarters and additional facilities for officers.

Appearance

The ships originally converted into high speed transports from the destroyer escorts of the "Buckley" class retained the high bridge, but were given a 5-inch gun-fore and a lattice mainmast for twin cargo booms.

Nomenclature

APD 98 (ex-*Truxtun*, DE 282) is now unnamed since no two naval ships can have the same name, the name *Truxtun* having been assigned to DLGN 35 in 1963.

Photographs

A photograph of *Lloyd* appears in the 1953-54 to 1964-65 editions, of *Cook* in the 1957-58 and 1958-59 editions, and of *Knudson* in the 1959-60 to 1964-65 editions.

Transfers

Cavallero, APD 128, was transferred to Korea in Oct. 1959, at Long Beach, California, and renamed *Kyung Nam Kleinsmith*, APD 134, was transferred to Taiwan China in May 1960, and renamed *Tien Shan*, Bowers, APD 40, was transferred to the Philippines on 21 Apr. 1961. *Brock*, *Myers* and *Upham* were sold to Colombia, and *Crosley*, *Frument*, *Hunter Marshall*, *Reeves* and *Walter S. Gorka* were sold to Ecuador in 1961-62 and converted into power plants. *Belet*, APD 109, *Don O. Woods*, APD 118, *Earheart*, APD 113, and *Joseph M. Amman*, APD 117, were sold to Mexico in



RUCHAMKIN

1965, United States Navy, Official



WEISS

1965, United States Navy, Official



LANING (APD Flagship)

1964, courtesy "Our Navy"

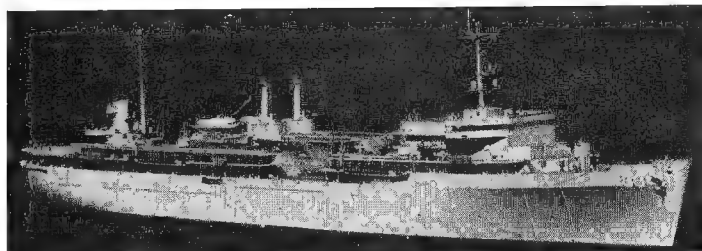
May and June, 1964. *Tollberg*, APD 103, was transferred to Columbia in 1965.

Disposals

Wantuck, APD 125, was stricken from the Navy List on 4 Mar. 1958 after collision with an attack transport (APA). *Carpellotti*, APD 136, was stricken on 1 Dec. 1960. *Amesbury*, APD 46, *Barr*, APD 39, *Bray*, APD 39, *Brock*, APD 93, *Cread*, APD 88, *Crosley*, APD 87, *Frument*, APD 77, *Haines*, APD 84, *Hunter Marshall*, APD 112, *Ira Jeffrey*, APD 44, *John Q. Roberts*, APD 94, *Myers*, APD 105, *Ray K. Edwards*, APD 96, *Reeves*, APD 52, *Rogers Blood*,

APD 15, *Pinels*, APD 85, *Sims*, APD 50, *Tatum*, APD 81, *Upham*, APD 99, *Walter S. Gorka*, APD 114, *Weber*, APD 75, and *William J. Pattison*, APD 104, were stricken at the end of 1961, and *Walter X. Young*, APD 131, in 1962. *Bray*, APD 139, was expended as a target on 26 Mar. 1963. *Arthur L. Bristol*, APD 97, *Bunch*, APD 79, *Francovich*, APD 116, *Gosselin*, APD 126, and *Yokes*, APD 69, were stricken on 1 Apr. 1964. *Charles Lawrence*, APD 37, *Donald W. Wolf*, APD 129, *Earle B. Hall*, APD 107, *Hopping*, APD 51, *Kinzer*, APD 91, *Lee Fox*, APD 45, *Loy*, APD 56, and *Newman*, APD 59, were stricken in 1965.

SUBMARINE TENDERS (AS)



SIMON LAKE

1965, United States Navy, Official

2 New Construction AS (FBM)

AS 33 SIMON LAKE

Displacement: 21,450 to 22,250 tons full load
 Dimensions: 643½ × 85 × 30 feet
 Guns: 4—3 inch, 50 cal. in 2 twin mountings amidships
 Machinery: Steam turbines
 Boilers: 2 Combustion Engineering. 630 lb./sq. in., 850 deg.F
 Complement: 1,075 (55 officers, 1,020 men). Accommodation for 1,387 officers and men

AS 34 CANOPUS

General

Simon Lake was authorised in the Fiscal Year 1963 Programme. This ship is the third new construction AS but is of new and improved design over those provided in the 1960 and 1962 Programmes. Her primary purpose is to provide full mobile base facilities and support for nuclear powered submarines including FBM submarines. This includes a full nuclear reactor support capability and facilities for handling, replacement and limited servicing of the Polaris missiles. She is designed to support fully nine SSBNs with as many as three simultaneously receiving complete alongside services. A large gantry crane with athwartships bridge travel and extremely accurate controls will be provided in order to on and off load missiles and nuclear containers from the submarines. Built by Puget Sound Naval Shipyard, Bremerton, Wash. for \$73,000,000. Construction began in Oct. 1962. The keel was laid on 7 Jan. 1963 and she was launched on 8 Feb. 1964 and commissioned on 7 Nov. 1964.

Her sister ship, *Canopus* was authorised under the Fiscal Year 1964 New Construction Programme. Built by Ingalls Shipbuilding Corp. at a cost of \$34,812,350. Her keel was laid on 2 Mar. 1964 and she was launched on 12 Feb. 1965 and commissioned in Sep. 1965. The third and final FBM tender was authorised in the Fiscal Year 1965 New Construction Programme, but deferred.

Nomenclature

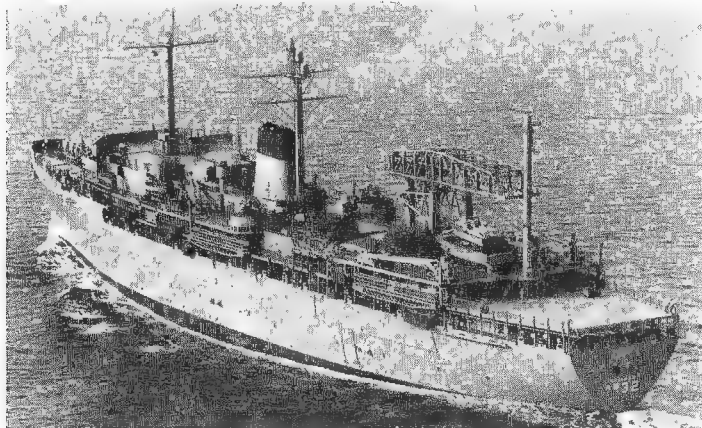
Submarine tenders are named after pioneers in submarine development. AS 33 was named after Simon Lake whose Lake Torpedo Boat Company produced its first submarine for the United States Navy in 1912. Simon Lake served as adviser to the Navy during the Second World War until his death on 23 June 1945.

AS 35 1+1 New Construction AS

Displacement: 24,000 tons full load
 Dimensions: 642 × 85 feet
 Guns: 2—5 inch (single); 4—50 cal. M.G.

General

AS 35 in the Fiscal Year 1965 Programme. Designed primarily to support nuclear powered attack submarines. Will have logistic capability for 12 SSN, simultaneous complete alongside services for four SSN, and facilities for the repair of nuclear power plants. To be built by General Dynamic Electric Boat Div., Quincy. Another AS in the 1966 Programme.



HOLLAND

1964, United States Navy, Official

2 "Hunley" Class

AS 31 HUNLEY

Displacement: 10,500 tons standard (18,300 tons full load)
 Dimensions: 599 × 83 feet
 Guns: 4—3 inch, 50 cal., in 2 twin mountings
 Machinery: 10 Fairbanks-Morse diesel electric, 12,000 kw, 1 shaft.
 B.H.P.: 15,000=19 kts.
 Complement: 1,081 (58 officers, 1,023 men) plus accommodation for 30 officers and 270 men from submarines

AS 32 HOLLAND

General

Tenders for serving Polaris submarines. *Hunley* was authorised in the Fiscal Year 1960 New Construction Programme and built by Newport News Shipbuilding & Drydock Co., Newport, Virginia, at a cost of \$28,680,000. She provides weapon and nuclear logistic support for ballistic missile submarines. A large hammerhead crane of 32 tons capacity with athwartships bridge travel, the first of its kind aboard a ship, is installed to on and off load missiles from submarines. Laid down on 28 Nov. 1960. Launched on 28 Sep. 1961. Commissioned on 16 June 1962. Completed on 4 Aug. 1962.

Holland was authorised under the 1962 Programme. Built by Ingalls Shipbuilding Corp. for \$24,359,800. Laid down on 5 Mar. 1962. Launched on 19 Jan. 1963. Commissioned on 7 Sep. 1963. Equipped with 52 workshops and a helo platform.

Nomenclature

Holland is named after John Philip Holland, a British emigrant to the United States, who became "the father of the submarine". One of his submarines was accepted by the Navy in 1900 and became Submarine Torpedo Boat No. 1, named *Holland*, the first successful Navy submarine.

Photographs

A photograph of *Hunley* appears in the 1962-63 and 1963-64 editions.

1 "Euryale" Class

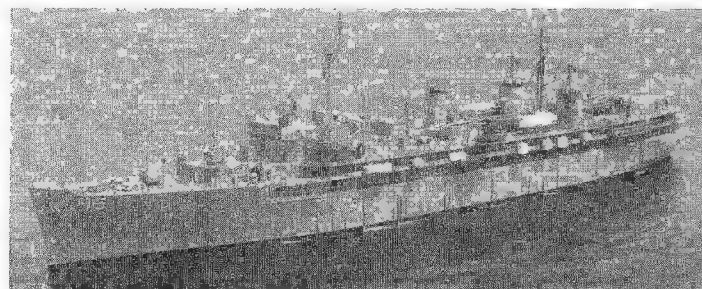
AS 32 EURYALE (ex-S.S. Hawaiian Merchant)

Displacement: 8,282 tons standard (15,400 tons full load)
 Dimensions: 492½ (o.a.) × 69½ × 25 feet
 Guns: 1—5 inch, 38 cal., 4—3 inch, 50 cal.
 Machinery: De Laval geared turbine. S.H.P.: 8,500=16.5 kts.

General

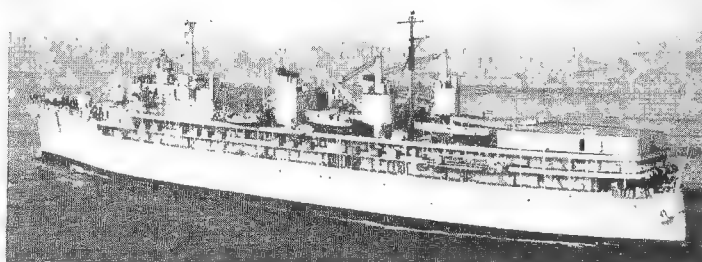
Launched in 1941. Acquired by U.S.N. in 1943. Modified C3 type. In reserve.

Submarine Tenders—continued



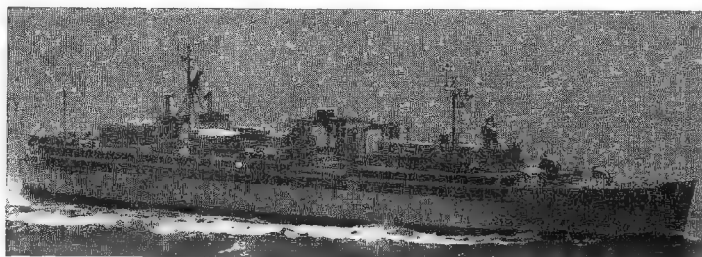
BUSHNELL

1964, United States Navy, Official



NEREUS

1961, United States Navy, Official



PROTEUS

1961, United States Navy, Official

7 "Fulton" Class

5 *Mare Island Navy Yard*
 15 *BUSHNELL* (14 Sep. 1942)
 11 *FULTON* (27 Dec. 1940)
 16 *HOWARD W. GILMORE* (ex-Neptune, 16 Sep. 1943)
 17 *NEREUS* (12 Feb. 1945)
 12 *SPERRY* (17 Dec. 1941)
 2 *Moore Dry Dock Co., Oakland, Calif.*
 18 *ORION* (14 Oct. 1942)
 19 *PROTEUS* (12 Nov. 1942)

Displacement: 9,734 tons standard (18,000 tons full load)
 (Proteus 10,234 tons standard, 18,500 tons full load)
 Dimensions: 530½, Proteus 574½ (o.a.) × 73½ × 25½ (max.) feet
 Guns: 2—5 inch, 38 cal. (After 2—5 inch guns and ten 40 mm. A.A. guns removed in Sep. 1960)
 Machinery: G.M. diesel electric. B.H.P.: 11,200=15.4 kts.
 Complement: 444 to 1,470 (total accommodation)

General

Fulton was authorised under 1938 Programme, others under 1940. Launch dates above. Ships vary in detail.

Conversion

Proteus, AS 19, was converted at the Charleston Naval Shipyard, under the Fiscal Year 1959 Conversion Programme, at a cost of \$23,000,000 to serve the Nuclear Powered Fleet Ballistic Missile Submarine Squadron. Conversion was started on 19 Jan. 1959 and she was recommissioned on 8 July 1960. She was lengthened by adding a section amidships 44 feet in length, and the bare hull weight of this 6-deck high insertion was approximately 500 tons.

Nereus, AS 17, underwent a 4-month conversion in Nov. 1959 to Feb. 1960, for facilities to service nuclear powered submarines. Her after guns were removed and her upper decks extended aft to provide additional workshops.

Bushnell, *Fulton*, *Howard W. Gilmore*, *Nereus*, *Orion* and *Sperry* have undergone FRAM II conversion to handle nuclear powered submarines.

Photographs

Photographs appear of *Fulton* in the 1958-59 and 1959-60 editions and of *Orion* in the 1950-51 to 1957-58 editions.

1 "Aegir" Class

AS 23 AEGIR

Displacement: 8,100 tons standard (16,100 tons full load)
 Dimensions: 492 (oa.) × 69½ × 26½ (max.) feet
 Guns: 1—5 inch, 38 cal., 4—3 inch, 50 cal.
 Machinery: Westinghouse geared turbines. S.H.P.: 8,500=18.4 kts.

General

Launched in 1943 and completed in 1944. Built by Ingalls Shipbuilding Corp. C3-S-A2 type. Out of commission, in reserve.

Disposals

Of three sister ships, *Anthedon*, AS 24 and *Clytle*, AS 26 were stricken from the list of naval vessels on 1 Sep. 1961, and *Apollo*, AS 25, transferred to the Maritime Administration in 1963, was stricken in 1964.

2 "Griffin" Class

AS 13 GRIFFIN (ex-Marmacpenn, 10 Nov. 1939)

AS 14 PELIAS (ex-Marmacpenn, 14 Nov. 1939)

Displacement: 8,600 tons standard (14,500 tons full load)
 Dimensions: 492 × 69½ × 24½ (max.) feet
 Guns: 4—3 inch, 50 cal.
 Machinery: 4 sets Busch-Sulzer diesels. B.H.P.: 8,500=16.5 kts.

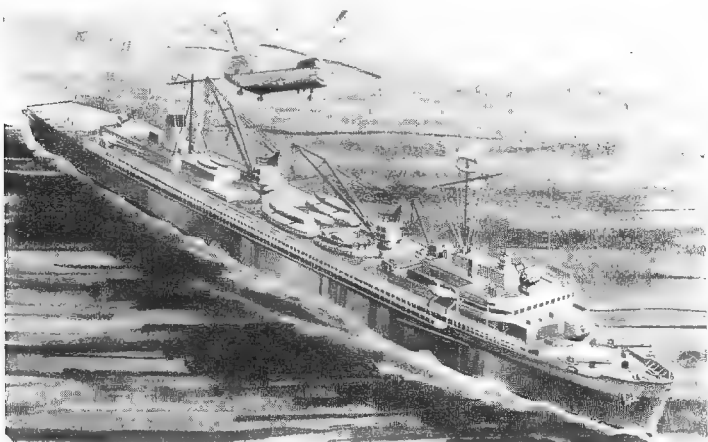
General

C3 Cargo type. Launch dates above. Completed on 31 July 1941 and 5 Sep. 1941., respectively. Out of commission, in reserve.

Photographs

A photograph of *Pelias* appears in the 1952-53 to 1960-61 editions.

DESTROYER TENDERS (AD)



NEW AD 1963, United States Navy, Official

2+1 New Construction

AD 37 SAMUEL GOMPERS AD 38 PUGET SOUND

Displacement: 20,500 tons to 21,630 tons full load
Dimensions: 643×85 feet
Guns: 1—5 inch, 38 cal.

General

Samuel Gompers is the first Destroyer Tender of post-Second World War design. She will have repair, supply and support facilities for new destroyer types, missile systems, anti-submarine warfare weapons and equipments, advanced communications and electronic systems and nuclear propulsion plants. She will be able to furnish in port service to six guided missile destroyer type ships alongside simultaneously. Cost \$37,000,000. The ship was authorised under the Fiscal Year 1964 new construction programme, and laid down on 9 July 1964 for launching in Feb. 1966 and commissioning in Dec. 1966. Puget Sound was authorised in the Fiscal Year 1965 new construction programme. Laid down 15 Feb. 1965 for launching in Oct. 1966 and completion in Aug. 1967. Both built by Puget Sound Naval Shipyard. Another AD is in the 1966 programme.



PIEDMONT 1964, United States Navy, Official

5 "Dixie" Class

2 New York S.B. Corpn. 3 Tampa S.B. Co.
AD 14 DIXIE (27 May 1939) AD 17 PIEDMONT (7 Dec. 1942)
AD 15 PRAIRIE (9 Dec. 1939) AD 18 SIERRA (23 Feb. 1943)
AD 19 YOSEMITE (16 May 1943)

Displacement: 9,450 tons standard (17,176 tons full load)
Dimensions: 520 (w.l.), 530½ (o.a.)×73½×25½ feet
Guns: 2—5 inch 38 cal.
Machinery: Geared turbines, 2 shafts. S.H.P.: 11,000—19.6 kts.
Complement: 1,076 to 1,698 (total accommodation)

General

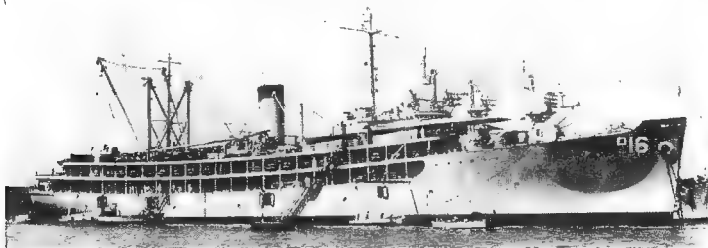
Launch dates above. Dixie and Prairie first commissioned in 1940, the others in 1944.

Conversion

All underwent FRAM II conversion with helicopter platform and hangar; heliport and repair facilities to service DASH drones and store homing torpedoes; and bays for guided missile servicing. The two after 5 inch guns and the eight 40 mm. AA. guns were removed.

Photographs

A photograph of Dixie appears in the 1954-55 to 1957-58 editions, a starboard quarter view of Prairie in the 1958-59 to 1961-62 editions, and a port bow view of Prairie in the 1962-63 and 1963-64 editions.



CASCADE 1963, Captain Aldo Fraccaroli

AD 16 CASCADE

1 "Cascade" Type

Displacement: 9,800 tons standard (16,600 tons full load)
Dimensions: 492 (o.a.)×69½×27½ (max.) feet
Guns: 2—5 inch, 38 cal., 6—40 mm. AA.
Machinery: Turbines. S.H.P.: 8,500—18.4 kts.
Complement: 857 (total accommodation)

General

Built by Western Pipe & Steel Co., San Francisco, C3-S1-N2 type. Launched on 7 June 1942 and commissioned on 12 Mar. 1943.

Disposals

Of the "Hamul" class. Hamul (ex-Dr. Lykes), AD 20, was decommissioned and transferred to the Maritime Administration on 9 June 1962 and stricken from the Navy List in July 1963, and sister ship Markab, AD 21, was reclassified as AR 23 on 15 Apr. 1960 and recommissioned in 1960.

Destroyer Tenders—continued



SHENANDOAH 1963, United States Navy, Official



FRONTIER 1962, Hiroyuki Otani

9 "Arcadia" Class

AD 23 ARCADIA (19 Nov. 1944)	AD 29 ISLE ROYALE (19 Sep. 1945)*
36 BRYCE CANYON (7 Mar. 1946)	26 SHENANDOAH (29 Mar. 1945)
24 EVERGLADES (28 Jan. 1945)	31 TIDEWATER (30 June 1945)
25 FRONTIER (25 Mar. 1945)	27 YELLOWSTONE (12 / pr. 1945)
28 GRAND CANYON (27 Apr. 1945)	

Displacement: 8,165 tons standard (16,635 to 16,900 tons full load)
Dimensions: 465 (w.l.), 492 (o.a.)×69½×27½ feet
Guns: 1—5 inch, 4—3 inch, 4—40 mm. AA.
Machinery: Geared turbines. S.H.P.: 8,500—18.4 kts.
Boilers: 2 Foster-Wheeler or Babcock & Wilcox
Complement: 778 to 918 (total accommodation)

General

Constructed by Todd Shipyards (Arcadia, Grand Canyon, Shenandoah, Yellowstone), Charleston Navy Yard (Bryce Canyon, Tidewater), Los Angeles S.B. & D.D. Co. (Everglades, Frontier) and Tacoma-Pacific Shipyard (Isle Royale). Three other ships (Arrowhead, Canopus, New England) were cancelled in 1945, and a fourth (Great Lakes) sold. Frontier was first commissioned on 2 Mar. 1946. Bryce Canyon was completed on 20 Dec. 1949. C 3 type. Ships vary in appearance. Shenandoah is fitted with ASROC and DASH shops, and a helo platform. Sister ship Klondike, AD 22, recommissioned in 1959, and was reclassified as AR 22 on 20 Feb. 1960.

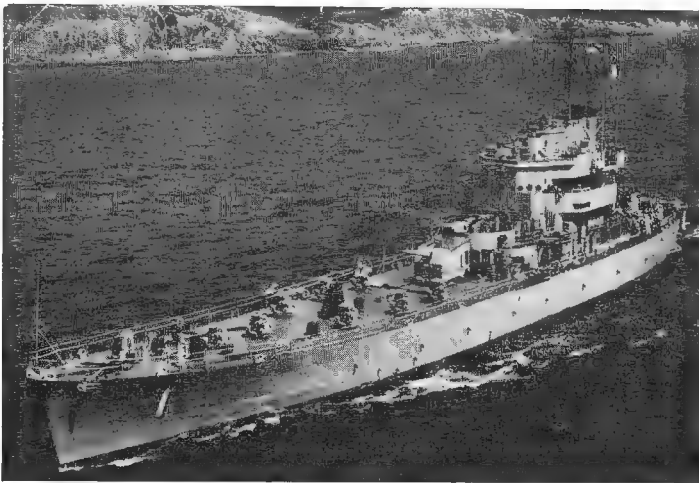
Rehabilitation

Isle Royale which had been in reserve status almost ever since she was built by Tacoma-Pacific Shipyard, Inc., Seattle, Washington, and first commissioned on 26 Mar. 1946 was brought forward for rehabilitation in Jan. 1962, recommissioned on 9 June 1962, overhauled in the Long Beach Naval Shipyard, and became ready for fleet service on 1 Jan. 1963. She replaced Hamul.

Photographs

A photograph of Grand Canyon appears in the 1958-59 to 1961-62 editions.

INSHORE FIRE SUPPORT SHIP (IFS)



CARRONADE 1960, United States Navy, Official

IFS 1 CARRONADE

Displacement: 1,040 tons light (1,500 tons full load)
Dimensions: 245×39×10 feet
Guns: 1—5 inch; 8 rocket throwers
Machinery: Fairbanks-Morse diesels. Geared drive, 2 shafts. Controllable pitch propellers. B.H.P.: 3,100=15 kts.
Complement: 162

General

Designed to support troops in amphibious landings. Main armament comprises rapid fire rocket launchers. Built by Puget Sound Bridge & Dredging Co. Keel laid on 19 Nov. 1952. Launched on 26 May 1953. Commissioned on 25 May 1955. Decommissioned in 1960. Recommissioned in 1965.

Photographs

A larger starboard quarter oblique aerial view of Carronade appears in the 1956-57 to 1959-60 editions.

OCEAN MINESWEEPERS (Non-Magnetic) MSO



ASSURANCE

1965, A. & J. Pavia



ABILITY

United States Navy, Official

3 "Ability" Class

MSO	Launched	MSO	Launched
519 ABILITY	29 Dec. 1956	520 ALACRITY	8 June 1957
		521 ASSURANCE	31 Aug. 1957

Displacement: 801 tons light (963 tons full load)
 Dimensions: 189 x 36 x 11 feet
 Guns: 1—40 mm. AA.
 Machinery: 2 G.M. diesels. 2 shafts. Controllable pitch propellers.
 B.H.P.: 2,700—15 kts.
 Complement: 82 (7 officers, 75 men)

General

Non-magnetic, wooden hulled vessels built by Petersen Builders Inc., Sturgeon Bay, Wisc. Last of the Fiscal Year 1955 New Construction Programme to be awarded. Designed to serve as mine division commander's flagships. Equipped for all types of mine counter-measures operations. Laid down on 5 Mar. 1956, 3 May, 1956, and 28 Jan. 1957, respectively. Launch dates above. Assurance commissioned on 21 Nov. 1958.

A photograph of Alacrity appears in the 1964-65 edition.

4 New Construction

Displacement: 940 tons

General

Ocean minesweepers of a new type. Requested in the Fiscal Year 1966 New Construction Programme.



AFFRAY

1961, United States Navy, Official

4 "Acme" Class

MSO	Launched	MSO	Launched
508 ACME	23 June 1955	510 ADVANCE	12 July 1957
509 ADROIT	20 Aug. 1955	511 AFFRAY	18 Dec. 1956

Displacement: 720 tons light (780 tons full load)
 Dimensions: 173 (o.a.) x 35 x 10 feet
 Guns: 1—40 mm. AA.
 Machinery: 2 Packard diesels. 2 shafts. B.H.P.: 2,800—14 kts.
 Oil fuel: 50 tons
 Radius: 3,000 miles at 10 kts.
 Complement: 74

General

This class is different from the "Agile" type but have similar basic particulars. Affray, commissioned on 8 Dec. 1958. Fitted with flagship facilities.

Transfers

MSO Nos. 506 and 507 launched on 13 Nov. 1954 and 19 Feb. 1955, respectively, were transferred to Italy in 1956. MSO 522, built by Petersen Builders Inc., under the F.Y. 1958 Programme, similar to MSO 512 class, was transferred to Belgium in Dec. 1960.

1 Special Minesweeper (MSS)

General

To be converted under the Fiscal Year 1966 Conversion Programme.

Ocean Minesweepers—continued



VITAL

Added 1960, Wright & Logan



PINNACLE

1960, Skyfotos

57 "Agile" Class

MSO

421 AGILE (19 Nov. 1955)
 422 AGGRESSIVE (4 Oct. 1952)
 423 AVERAGE (15 Mar. 1953)
 424 BOLD (14 Mar. 1953)
 425 BULWARK (14 Mar. 1953)
 426 CONFLICT (16 Dec. 1952)
 427 CONSTANT (14 Feb. 1952)
 428 DASH (20 Sep. 1952)
 429 DETECTOR (5 Dec. 1952)
 430 DIRECT (27 May 1953)
 431 DOMINANT (5 Nov. 1953)
 432 DYNAMIC (17 Dec. 1952)
 433 ENGAGE (ex-Elusive, 18 June 1953)
 434 EMBATTLE (27 Aug. 1953)
 435 ENDURANCE (9 Aug. 1952)
 436 ENERGY (13 Feb. 1953)
 437 ENHANCE (11 Oct. 1952)
 438 ESTEEM (20 Dec. 1952)
 439 EXCEL (25 Sep. 1953)
 440 EXPLOIT (10 Apr. 1953)
 441 EXULTANT (6 June 1953)
 442 FEARLESS (17 July 1953)
 443 FIDELITY (21 Aug. 1953)
 444 FIRM (15 Apr. 1953)
 445 FORCE (26 June 1953)
 446 FORTIFY (14 Feb. 1953)
 447 GUIDE (17 Apr. 1954)
 448 ILLUSIVE (12 July 1952)

MSO

449 IMPERVIOUS (29 Aug. 1952)
 455 IMPLICIT (1 Aug. 1953)
 456 INFLECT (16 Oct. 1953)
 457 LOYALTY (22 Nov. 1953)
 458 LUCID (14 Nov. 1953)
 459 NIMBLE (6 Aug. 1954)
 460 NOTABLE (15 Oct. 1954)
 461 OBSERVER (19 Oct. 1954)
 462 PINNACLE (3 Jan. 1955)
 463 PIVOT (9 Jan. 1954)
 464 PLUCK (6 Feb. 1954)
 466 PRIME (27 May 1954)
 467 REAPER (25 June 1954)
 468 RIVAL (15 Aug. 1953)
 469 SAGACITY (20 Feb. 1954)
 470 SALUTE (14 Aug. 1954)
 471 SKILL (23 Apr. 1955)
 472 VALOR (13 May 1953)
 473 VIGOR (24 June 1953)
 474 VITAL (12 Aug. 1953)
 488 CONQUEST (20 May 1954)
 489 GALLANT (4 June 1954)
 490 LEADER (15 Sep. 1954)
 491 PERSISTANT (23 Apr. 1955)
 492 PLEDGE (20 July 1955)
 493 STALWART (3 Dec. 1955)
 494 STURDY (28 Jan. 1956)
 495 SWERVE (1 Nov. 1955)
 496 VENTURE (27 Nov. 1956)

Displacement: 665 tons light (750 tons full load)
 Dimensions: 165 (w.l.) 171 (o.a.) x 35 x 11 feet
 Guns: 1—40 mm. AA.
 Machinery: 2 Packard diesels. 2 shafts. Controllable pitch propellers.
 B.H.P.: 2,280 x 15.5 kts. Dash, Detector, Direct and Dominant have 2 G.M. diesels, B.H.P., 1,520; (Venture has 2 diesels, B.H.P., 1,200)
 Oil fuel: 46 tons
 Radius: 2,400 miles at 12 kts.
 Complement: 72 to 75

General

These ships have wooden hulls and non-magnetic equipment, with diesels of non-magnetic stainless steel alloy. Aggressive, AM 422, was built by Luders Marine Const. Co., Stamford, Conn. Cost \$3,500,000. Laid down on 25 May 1951, commissioned on 25 Nov. 1953. Illusive, AM 448, was built by Martinlock S.B. Co., San Diego, and commissioned on 14 Nov. 1953. Bold, AM 424, and Bulwark, AM 425, were built by Norfolk Naval Shipyard, and the remainder by private yards. All the above vessels, formerly known as Minesweepers (AM) were reclassified as Minesweepers, Ocean (Non-magnetic) (MSO) in Feb. 1955. Launch dates above. A total of 100 were built in the U.S.A. for the U.S. Navy and the Mutual Defence Assistance Programme.

Photographs

Of Direct in the 1955-56 edition, Exultant in the 1956-57 and 1958-59 editions, Vital in the 1957-58 edition, Pinnacle in the 1957-58 to 1959-60 editions, Nimble in the 1958-59 and 1959-60 editions.

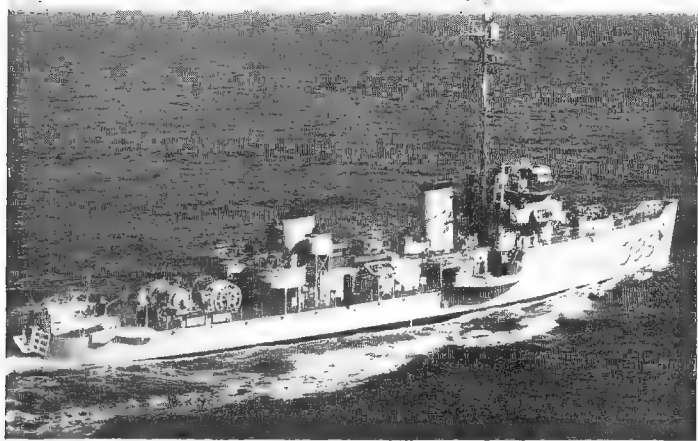
Transfers

Nos. 450-454, 475-487, 498-507, 512-518 were built for foreign countries under the Military Aid Programme and no U.S. names were allocated. 8 were transferred to France, 6 to the Netherlands, 4 to Portugal, 4 to Belgium, 2 to Norway, and 2 to Italy.

Casualties

Prestige was stranded in the Naruto Straits, Inland Sea, Japan, on 23 Aug. 1958, abandoned as a total loss, and stricken from the Navy List. Exultant caught fire after an explosion off the coast of Savannah, Georgia, on 12 Aug. 1960, but has been repaired.

FLEET MINESWEEPERS (Steel Hulled) (MSF)



WAXWING

Ted Stone



QUAIL

Added 1960, Ted Stone

45 "Auk" Class. (Large Type)

6 American S.B. Co.

- MSF
116 SPEED (18 Apr. 1942)
384 SPRIG (15 Sep. 1944)
114 STAFF (17 June 1942)
118 STEADY (6 June 1942)
386 TERCEL (16 Dec. 1944)
390 WHEATEAR (21 Apr. 1945)

2 Associated Shipbuilders

- 322 SPEAR (25 Feb. 1943)
324 VIGILANCE (5 Apr. 1943)

4 Defoe B. & M. Works

- 58 BROADBILL (21 May 1942)
59 CHICKADEE (20 July 1942)
60 NUTHATCH (16 Sep. 1942)
61 PHEASANT (24 Oct. 1942)

13 General Engineering & DD. Co.

- 340 ARDENT (22 June 1943)
314 CHAMPION (12 Dec. 1942)
315 CHIEF (5 Jan. 1943)
316 COMPETENT (9 Jan. 1943)
317 DEFENSE (18 Feb. 1943)
318 DEVASTATOR (19 Apr. 1943)
319 GLADIATOR (7 May 1943)
100 HEED (19 June 1942)
101 HERALD (4 July 1942)
320 IMPECCABLE (21 May 1943)
102 MOTIVE (17 Aug. 1942)
103 ORACLE (30 Sep. 1942)
64 STARLING (11 Apr. 1942)

7 Gulf S.B. Corp.

- MSF
341 DEXTROUS (17 Jan. 1943)
379 ROSELLE (29 Aug. 1945)
381 SCOTER (26 Sep. 1945)
126 TOKEN (28 Mar. 1942)
127 TUMULT (19 Apr. 1942)
128 VELOCITY (19 Apr. 1942)
131 ZEAL (15 Sep. 1942)

2 John H. Mathis Co.

- 120 SWAY (29 Sep. 1942)
122 SWIFT (5 Dec. 1942)

1 Norfolk Navy Yard

- 55 RAVEN (24 Aug. 1940)

2 Pennsylvania Shipyard

- 104 PILOT (5 July 1942)
105 PIONEER (26 July 1942)

6 Savannah Machine & Foundry Co.

- AG 176 PEREGRINE ex-MSF 373
(17 Feb. 1945)

- 374 PIGEON (28 Mar. 1945)
375 POCHARD (11 June 1944)
377 QUAIL (20 Aug. 1944)
123 SYMBOL (2 July 1942)
124 THREAT (15 Aug. 1942)

2 Winslow Marine Ry. & S.B. Co.

- 110 REVENGE (ex-Right, 7 Nov. 1942)
111 SAGE (21 Nov. 1942)

Displacement: 890 tons standard (1,250 tons full load)
Dimensions: 215 (w.l.), 221½ (o.a.) × 32½ × 10½ feet
Guns: 1—3 inch, 50 cal. d.p., 2 or 4—40 mm. AA.
Machinery: Diesel electric. 2 shafts. B.H.P.: 3118—3,532=18 kts.
Complement: Accommodation for 105 to 117

General

All except Peregrine (experimental) are out of commission, in reserve, and will be disposed of in the near future. Raven is of slightly different type (full particulars and photograph in the 1957-58 edition).

Reclassification

All the above, formerly known as Ocean Minesweepers (AM) were reclassified as Minesweepers, Fleet (steel-hulled) MSF in Feb. 1955.

Prevail (AM 107), Pursuit (AM 108), Requisite (AM 109) and Sheldrake (AM 62) were reclassified as survey ships (AGS) in 1952 and Towhee (MSF 388) in Apr. 1964. Surfbird (MSF 383) was reclassified as a degaussing vessel (ADG) on 18 May 1957. Tanager, MSF 385, was transferred to the Coast Guard on 1 Nov. 1963.

Experimental

Peregrine is experimental. Designation EMSF 373 changed to AG 176 on 1 Apr. 1964.

Photographs

Larger photographs of Raven and Sprig in the 1957-58 and earlier editions, of Revenge in the 1957-58 to 1959-60 editions, of Pilot in the 1959-60 edition.

Transfers

Strive, MSF 117, Sustain, MSF 119, Seer, MSF 112, and Triumph, MSF 323, converted and reclassified as coastal minelayers MMC 1, MMC 2, MMC 5 and MMC 3, respectively, transferred to Norway in 1959-60, Ruddy, MSF 380, and Shoveler, MSF 382, to Peru in 1960, Ptarmigan, MSF 376, to Korea on 25 July 1963, Murlelet, MSF 372, to Philippines in June 1965, Redstart, MSF 378, Toucan, MSF 387, to Taiwan on 22 Dec. 1964 and Waxwing, MSF 389, in Aug. 1965.

Disposals

Auk, MSF 57, was stricken from the list of naval vessels on 1 Aug. 1959.

Fleet Minesweepers (Steel Hulled) MSF—continued



INCREDIBLE (funnel type)

1960, United States Navy, Official



No funnel type

United States Navy, Official

12 "Admirable" Class. (Medium Type)

6 Associated Shipbuilders

- MSF
304 SCURRY (ex-Skurry, 11 Oct. 1943)
306 SPECTER (15 Feb. 1944)
307 STAUNCH (15 Feb. 1944)
308 STRATEGY (28 Mar. 1944)
309 STRENGTH (28 Mar. 1944)
311 SUPERIOR (11 May 1944)

1 Gulf S.B. Corp.

- 280 PROWESS (17 Feb. 1944) T

Displacement: 650 tons standard (945 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.) × 33 × 10 feet
Guns: 1—3 inch d.p., 4—40 mm. AA.
Machinery: Diesel. 2 shafts. B.H.P.: 1,710=15 kts.
Complement: Accommodation for 104 (11 officers and 93 men)

General

Appearance varies according to the builders. Some have a funnel. Cruise, completed by Charleston Navy Yard, was armed with only 2—40 mm. guns. All out of commission in reserve, except Prowess, employed as a naval reserve training ship, and the remainder will be disposed of in the near future.

Photograph

A larger photograph of Jubilant appears in the 1955-56 to 1959-60 editions.

Reclassification

All the above minesweepers, formerly known as Fleet Minesweepers (AM) were reclassified as Minesweepers, Fleet (steel hulled) MFS in Feb. 1955.

Transfer

34 of this class were transferred to the Soviet Navy in 1943, and 13 to the Chinese Navy. Gayety, MSF 239, and Sentry, MSF 299, were transferred to the Vietnamese Navy in June 1962 and Aug. 1962, respectively, under the Military Aid Program, and Serene, MSF 300, and Shelter, MSF 301, in Jan. 1964.

Crag, MSF 214, Device, MSF 220, Diploma, MSF 221, Dour, MSF 223, Eager, MSF 224, Execute, MSF 232, Facility, MSF 233, Hilarity, MSF 241, Instill, MSF 252, Intrigue, MSF 253, Invade, MSF 254, Jubilant, MSF 255, Knave, MSF 256, Ransom, MSF 283, Rebel, MSF 284, Recruit, MSF 285, Scout, MSF 296, Scuffle, MSF 298, Success, MSF 310, and Harlequin, MSF 365, were sold to Mexico in Oct. 1962. Report, MSF 289, was transferred to the Army in Apr. 1963. Creddock, MSF 356, for transfer in 1965.

Losses

Salute was lost in the Second World War. Pirate (AM 275) and Pledge (AM 277) of this class struck mines and sank off Wonsan, Korean east coast, on 12 Oct. 1950.

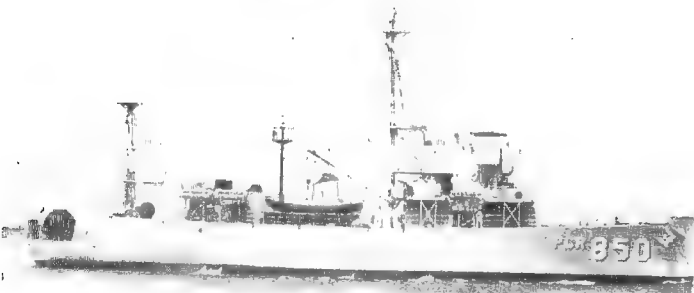
Recent Disposals

Control, MSF 164, was stricken from the Navy List on 13 Mar. 1958 and disposed of in 1959. Clamour, MSF 160, Climax, MSF 161, Compel, MSF 162, Concise, MSF 163, Incredible, MSF 249, Mainstay, MSF 261, Reign, MSF 288, Dipper, MSF 357, and Harrier, MSF 366, were stricken on 1 Dec. 1959. Change, MSF 159, Density, MSF 218, Design, MSF 219, Garland, MSF 238, Opponent, MSF 269, and Scrimmage, MSF 297, at the end of 1960, Inaugural, MSF 242, in 1961, and Signet, MSF 302 and Skirmish, MSF 303, in 1965.

Disposals of Auxiliary Minelayers

Of the auxiliary minelayers of the ex-Army mineplanter type, MMA 11, Camanche (ex-MP 21, Brigadier General Royal T. Frank), MMA 12, Canonicus (ex-MP 10, Major General Erasmus Weaver), MMA 13, Miantonomah (ex-MP 14, Colonel Horace F. Spurgeon), MMA 14, Monadnock (ex-Major Samuel Ringold), and MMA 15, Naussett (ex-MP 7, Major General Wallace F. Randolph), were all stricken from the Navy List in 1960, and Purlan, MMA 16 (ex-MP 13, Colonel Alfred A. Maybach) was stricken on 1 Nov. 1959.

ESCORTS (PCE and PCER)



FAIRVIEW (PCER Type) 1962, Mr. S. P. Ryan



WORLAND (PCE Type) 1960, United States Navy, Official

11 "180" ft. Steel Type

PCE		PCER	
856 WHITEHALL	21 Apr. 1944	E 849 SOMERSWORTH	31 Jan. 1944
877 HAVRE	11 Aug. 1943	E 850 FAIRVIEW	8 Feb. 1944
880 ELY	27 Oct. 1943	E 851 ROCKVILLE	22 Feb. 1944
902 PORTAGE	28 Aug. 1943	E 852 BRATTLEBORO	1 Mar. 1944
		E 853 AMHERST	18 Mar. 1944
		E 855 REXBURG	10 Apr. 1944
		E 857 MARYSVILLE	4 May 1944
Displacement:	640 tons standard (903 tons full load)		
Dimensions:	180 (w.l.) 184½ (o.a.)×33×9½ feet		
Guns:	1—3 inch d.p., 6—40 mm. AA. 4 D.C.T. (most PCER type are unarmed)		
Machinery:	Diesel, 2 shafts, B.H.P.: 1,800 to 2,400=15 kts.		
Complement:	60 (5 officers, 55 men)		

General
Built by Pulman Standard Mfg. Co., Albina Engine & Machinery Works and Willamette Iron and Steel Corp. Launch dates above. During the Second World War the "PCER" type carried hospital equipment and personnel, with accommodation for 57 patients. PCE 873-898 were redesignated PCEC, reassigned to amphibious forces, and had additional equipment installed as Control Escorts, but the remaining PCEC were again reclassified as PCE on 27 Oct. 1955. The 25 surviving PCE and PCER were named on 15 Feb. 1956. Whitehall was reclassified from PCER to PCE in Mar. 1962. The four remaining PCEs and Amherst are Naval Reserve training ships.

Experimental
The six vessels now used for experimental purposes, Nos. 849, 850, 851, 852, 855, and 857 were redesignated as EPCER in 1959.

Photographs
A photograph of Battelboro, PCER 852, appears in the 1949-50 to 1958-59 editions, of Gettysburg, PCE 904, in the 1952-53 to 1959-60 editions, of Rexburg, PCER 855 in the 1959-60 to 1961-62 editions.

Transfers
Eunice, PCE 846, and Pascagoula, PCE 874, to Ecuador in 1960, several PCE to China; Cuba and Mexico, PCEC 873, PCEC 882, PCEC 896 and PCEC 898 to Korea, PCEC 873 and PCEC 898 to Korea in 1956 and PCEC 882 and PCEC 896 in Feb. 1955, Crestview, PCE 895 to Vietnam on 29 Nov. 1961, Batesburg, PCE 903, Dania, PCE 870, Marfa, PCE 842, and Somerset, PCE 892, to Korea on 9 Dec. 1961, Lamar, PCE 899, to the Coast Guard on 1 June 1964, Worland, PCE 845, to the State of North Carolina on 6 June 1964, Farmington, PCE 894, to Burma on 31 May 1965.

Disposals
Skowhegan, PCE 843, Groton, PCE 900 and Gettysburg, PCE 904, were stricken on 1 Feb. 1960 and Banning, PCE 886, on 1 May 1961.

SUBMARINE CHASER (PCH)

1 Hydrofoil Type

PCH 1 HIGH POINT	
Displacement:	110 tons
Dimensions:	115 (oa)×31 feet. Draught: 6 to 17 feet
Guns:	2—50 cal MG (twin)
A/S weapons:	4—21 inch torpedo tubes (2 twin), D.C.T.
Machinery:	2 Bristol Siddeley Marine Proteus gas turbines, 2 shafts. S.H.P.: 6,200=48 kts. (max.)
Complement:	Auxiliary diesel propulsion. B.H.P.: 600=12 kts. cruising 13 (1 officer, 12 men)

General
Hydrofoil submarine chaser, prototype of future anti-submarine warfare patrol craft, for harbour surveillance, harbour approaches, and coastal water out to 200 miles. The largest operational naval hydrofoil in the world. Equipped with machine guns, torpedoes, depth charges and sonar gear. Aluminium hull. Four propellers, two pushing, two pulling, fitted on retractable hydrofoils. Forward foil single strut, after foil two struts. Struts extend over 14 ft. below hull. With foils retracted draught is about 6 ft. Diesel with retractable propeller. Two sonars and magnetic

Submarine Chaser (PCH)—continued



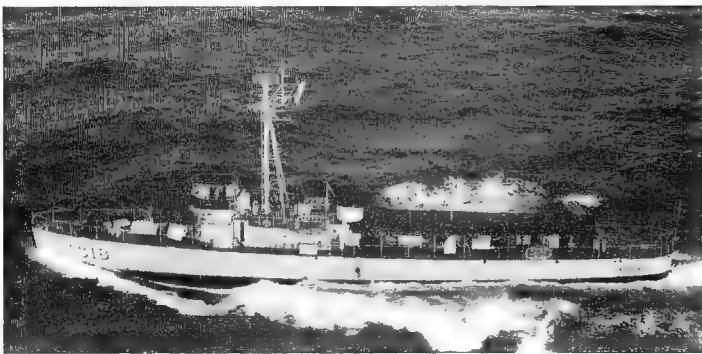
HIGH POINT 1963, United States Navy, Official

Hydrofoil Type—continued

detection equipment installed. Provided for under the Fiscal Year 1960 Program. Cost \$3,700,000. Named after High Point, North Carolina.

Construction
Designed by W. C. Nickum & Sons, Seattle, Wn. Built jointly by Boeing Aircraft Corp., Seattle, Wn., and J. M. Martinac, Tacoma, Washington, at Martinac's Tacoma Yard, Laid down on 27 Feb. 1961. Launched on 17 Aug. 1962. Completed and placed in service on 3 Sep. 1963.

SUBMARINE CHASERS (PC)



WEATHERFORD 1961, United States Navy, Official

1 "173 ft." Steel Type

EPC 618 WEATHERFORD	
Displacement:	280 tons standard (450 tons full load)
Dimensions:	170 (w.l.), 173½ (o.a.)×23×10½ feet
Guns:	1—3 inch d.p., 1—40 mm. AA. (original)
A/S weapons:	4 D.C.T.
Machinery:	2 F.M. diesels, 2 shafts, B.H.P.: 2,800=20 kts.
Complement:	Accommodation for 65 (4 officers, 61 men)

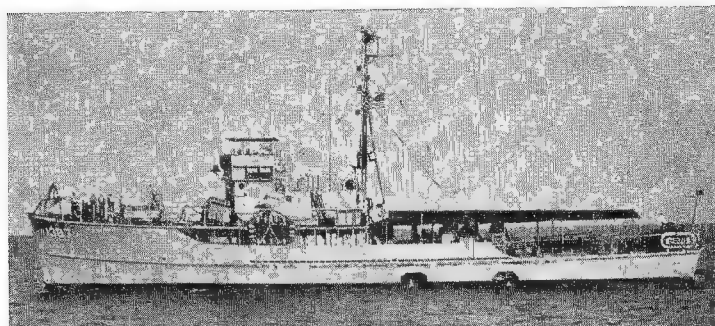
General
Sole survivor of a very numerous class of some 270 units. Weatherford is experimental and designated EPC. Built by George Lawley & Sons, Inc., Neponset, Mass. Laid down on 29 Apr. 1942, launched on 1 Aug. 1942, and first commissioned on 7 Sep. 1942.

Transfers
PC 1086, 1130, 1139, 1143, 1144, 1146, 1167, 1171 were transferred to France in 1951 and sent to Indo-China. (They were later returned, and PC 1086 and PC 1171 transferred to Cambodia and the others to Viet Nam.) PC 485 and PC 600 were transferred to Korea, PC 495, 570, 575, 609, 616, 1185, 1218 and 1253 to Thailand, PC 786, 1078, 1168, 1182, 1208, 1232, 1233, 1254 and 1262 to Taiwan China in 1954, PC 622 to Greece in 1954, Placerville, PC 1087, Hanford, PC 1142, Susanville, PC 1149, Escondido, PC 1169 and Vandalla, PC 1175, to Taiwan China in July 1957, Pierre, PC 1141, to Indonesia on 25 Oct. 1958, Milledgeville, PC 1263, to Taiwan China on 1 July 1959, Malvern, PC 580, and Manville, PC 581, to Indonesia in Mar. 1960, Anacortes, PC 1569, to Viet Nam in 1960, Grosse Point, PC 1546, and Winnemucca, PC 1145, to Korea in 1960, Cooperstown, PC 484, Dalhart, PC 619, Edenton, PC 1077, Gilmer, PC 565, Honesdale, PC 566, Larchmont, PC 487, Lenoir, PC 582, Minden, PC 1176, Paragould, PC 465, Rolla, PC 483, Tarrytown, PC 1252, and Tooele, PC 572, to Venezuela in 1961, Altus, PC 568, and Riverhead, PC 567, to the U.S.A.F. in 1963, Chadron, PC 564 to Korea in Nov. 1963.

Disposals
Andrews, PC 606, Beeville, PC 617, Bethany, PC 620, Bluffton, PC 416, Canandaigua, PC 1246, Corinth, PC 1547, Fredonia, PC 1174, Greencastle, PC 1119, Kerrville, PC 597, Malone, PC 553, Munising, PC 1228, Oberlin, PC 560, Waverly, PC 1225, and Wauseon, PC 1229 were stricken from the Navy List in 1957, PC 586, Patchogue, PC 558, Houghton, PC 589, Metropolis, PC 592, Towanda, PC 776, Pikeville, PC 777, Waynesburg, PC 778, Gallipolis, PC 779, Mechanicsburg, PC 780, Maynard, PC 781, Metuchen, PC 782, Glenaden, PC 785, Frostburg, PC 808, Ripley, PC 817, Welch, PC 823, Asheboro, PC 1120, Carlisle, PC 1125, Cordele, PC 1135, Canastota, PC 1136, Galena, PC 1137, Worthington, PC 1138, Lapeer, PC 1181, Wildwood, PC 1186, Lehigh, PC 1191, Bel Air, PC 1193, Ridgway, PC 1196, Mayfield, PC 1198, Westerly, PC 1201, Kittery, PC 1209, Medina, PC 1212, Laurinburg, PC 1213, Loudon, PC 1216, Atkins, PC 1230, Grinnell, PC 1237, Abingdon, PC 1240, Cullpeper, PC 1242, Port Clinton, on 1 Apr. 1959, Jasper, PC 486, on 1 May 1959, and Anoka, PC 571, Kewaunee, PC 1178, and Durango, PC 1260, on 1 Nov. 1959, Carmis, PC 466, Antigo, PC 470, Petoskey, PC 569, Wapakoneta, PC 579, Arcata, PC 601, Alturas, PC 602, Solvay, PC 603, Ludington, PC 1079, Cadiz, PC 1081, Glenwood, PC 1140, Kelsa, PC 1170, Olney, PC 1172, Andalusia, PC 1173, Guyman, PC 1177, Morris, PC 1179, Woodstock, PC 1180, Tipton, PC 1231, Martinez, PC 1244, Ukiah, PC 1251, in 1960.

Loss
PC 485, transferred to Korea, was stricken on 1 Mar. 1964 after being sunk at Guam.

SUBMARINE CHASERS (PCS)



BEAUFORT

United States Navy, Official

2 "136" ft. Wooden Type

PCS
1385 HOLLIDAYSBURG

Displacement: 251 tons standard (338 tons full load)
 Dimensions: 136×24½×8½ feet
 Guns: 1—3 inch d.p., 1—40 mm. AA., 2—20 mm. AA.
 A/S weapons: D.C.T.
 Machinery: 2 G.M. diesels, B.H.P.: 1,000=14 kts.
 Complement: 60

PCS
1387 BEAUFORT

General

These survivors of a class of 52 units were completed in 1944. All PCS were named on 15 Feb. 1956. Employed as naval reserve training ships.

Class

Five vessels of this class were reclassified as minesweepers with names and designations *Sanderling*, AMS 35, *Swallow*, AMS 36, *Swan*, AMS 37, *Verdin*, AMS 38, *Waxbill*, AMS 39, but in Mar. and Feb. 1955 *Sanderling*, AMS 35, and *Waxbill*, AMS 39, were reclassified as minesweepers AMCU 49 and AMCU 50, respectively, and again redesignated when minehunters were reclassified MHC. *Swallow*, *Swan* and *Verdin* were redesignated MSC(O) on 7 Feb. 1955. Former PCS 1465 was named *Minah* MHC (ex-AMCU) 14.

Transfers

PCS 1426 and PCS 1448 were loaned to Republic of Korea Navy on 9 June 1952 and PCS 1445 and PCS 1446 on 26 May 1952, but PCS 1426 was returned to the U.S. Navy in Apr. 1963 and stricken from the list.

Disposals

Attica, PCS 1383, and *Coguille*, PCS 1400, were scrapped in 1957. *Conneaut*, PCS 1444, *Deming*, PCS 1392, *Eufaula*, PCS 1384, *Provincetown*, PCS 1378, *Rushville*, PCS 1380, and *Winder*, PCS 1376, were stricken from the Navy List in 1957. *Hampton*, PCS 1386, was stricken on 1 July 1959. *Elsmere*, PCS 1413, was disposed of in 1961. *Prescott*, PCS 1423, was stricken on 1 Mar. 1962, *McMinnville*, PCS 1401 in Aug. 1962, and *Grafton*, PCS 1431, on 1 June 1965.

COASTAL MINEHUNTERS (MHC)



BITTERN

1960, United States Navy, Official

1 "Bittern" Class

MHC 43 BITTERN

Displacement: 300 tons standard (360 tons full load)
 Dimensions: 138 (pp.), 144½ (o.a.)×28×8 feet
 Guns: 1—40 mm. AA.
 Machinery: Diesels, 2 shafts. B.H.P.: 1,200=14 kts
 Complement: 44 (4 officers, 40 men)

General

This prototype Mine Hunter (MHC) of wooden construction was built by the Consolidated Shipbuilding Corporation, New York City, at a cost of \$1,782,107, under the 1954 Fiscal Year program. Designed to locate mines and other underwater obstacles, rather than to sweep them. To accomplish this she was equipped with various types of electronic instruments in place of minesweeping gear found in coastal minesweepers. To be mass produced in the event of mobilisation. Three more were to have been built under the 1955 Naval Appropriations, but were not started. Built of non-magnetic materials, with bronze aluminium and stainless steel fittings. *Bittern* was laid down on 18 Aug. 1955, launched on 4 Mar. 1957 and commissioned on 26 Aug. 1957.

Transfers

The converted coastal minehunter *Bunting*, MHC 45, was transferred to Brazil in June 1960.

Disposals

All 29 of the converted minehunters of the underwater locator type (8 former coastal minesweepers of the YMS class and 21 former large infantry landing ships of the LST class) were stricken on 1 Nov. 1959 or 1 Jan. 1960. See names, former numbers, and full particulars on page 433 of the 1959-60 edition.

COASTAL MINESWEEPERS (Non-Magnetic)



ALBATROSS

1962, United States Navy, Official

22 "Bluebird" Class (MSC)

MSC

121 BLUEBIRD
 T 122 CORMORANT
 T 190 FALCON
 191 FRIGATE BIRD
 192 HUMMING BIRD
 193 JACANA
 194 KING BIRD

MSC

195 LIMP KIN
 196 MEADOW LARK
 197 PARROT
 198 PEACOCK
 199 PHOEBE
 E 201 SHRIKE
 T 203 THRASHER

MSC

T 204 THRUSH
 205 VIREO
 205 WARBLER
 207 WHIPPOORWILL
 208 WIDGEON
 209 WOODPECKER
 289 ALBATROSS
 290 GANNET

Displacement:

320 tons light (370 tons full load)

Dimensions:

138 (pp.), 144 (o.a.)×28×8½ feet

Guns:

2—20 mm.

Machinery:

2 G.M. diesels. 2 shafts. B.H.P.: 880—13 kts. (MSC 200-209).

Packard engines. 2 shafts. B.P.H.: 1,200=14 kts. (MSC 121, 122, 190-199)

4 Harnischfeger 6-cyl diesels (Albatross, Gannet)

Oil fuel:

25 tons

Radius:

2,500 miles at 10 kts.

Complement:

39

General

Constructed throughout of wood and other materials with the lowest possible magnetic attraction to attain the greatest possible safety factor when sweeping for magnetic mines. *Bluebird* and *Cormorant* (commissioned 14 Aug. 1953) built by Mare Island Naval Shipyard 310 tons light. Only named vessels AMS 121, 122, 190-209 were commissioned into the U.S. Navy. Remainder, 60-120, 123-154, 167-171, 218-221, 255-288 were built for NATO or foreign countries under MDAP.

E. Shrike is experimental. T. Assigned to Naval Reserve training

Transfers

18 to Italy: AMS 72-76, 79-82, 88-90, 113-137, 280. 18 to Belgium: AMS 63-65, 77, 78, 101, 103, 104, 131, 151-154, 169-171, 259, 260. 8 to Denmark: AMS 127, 128, 129, MSC 221, 256, 257, 263, 264. 30 to France: AMS 66-71, 83-87, 93, 94, 96-99, 113-120, 124-126, 141-142, 14 to Netherlands: AMS 100, 105-112, 148-150, 167, 168. 2 to Norway: AMS 102, 132. 8 to Portugal: AMS 60 (ex-U.S.S. *Adjutant*), 61, 62, 91, 92, 145-147. 12 to Spain: AMS 130, 139, 143, 220, 265, 266, MSC 200 (ex-U.S.S. *Redwing*), MSC 202 (ex-U.S.S. *Spoonbill*), MSC 269, 279, 287, 288. 4 to Japan: AMS 95, 144, 255, 258. 8 to Pakistan: AMS 138, 261, 262, 267, 273, 274, 293, 294. 8 to Turkey: 268, 270, 271, 272, 304, 305, 311, 312. 4 to Iran: MSC 275, 276, 291, 292. 8 to Taiwan, China: AMS 123, 140, MSC 277, 278, 300, 302, 306, 307. 3 to Vietnam: MSC 281, 282, 283. 5 to Korea: MSC 284, 285, 286, 295, 296. 2 to Philippines: MSC 218, 219. 5 to Greece: MSC 298, 299, 308, 309, 310. 4 to Thailand: MSC 297, 301, 303, 313.

Cancellation

AMS 155 to 166 were reserved for German built vessels, but the order and numbers were cancelled.

Reclassification

All the early vessels formerly known as Auxiliary Motor Minesweepers (AMS) were reclassified as Minesweepers. Coastal (MSC), in Feb. 1955.

Production

More than 160 MSC were built in the U.S.A. for the U.S. Navy and MDAP.

Construction

Bellingham Shipyards Company, Washington, built MSC 268-272 and MSC 273-288 for foreign countries under the Military Assistance Programme. Two were built by Tacoma Boatbuilding Co., Tacoma, Washington: *Albatross*, laid down on 26 Feb. 1959, launched on 26 Mar. 1960, and completed on 24 Apr. 1961, and *Gannet*, laid down on 1 May 1959, launched on 2 June 1960, and completed on 14 July 1961. MSC 291 was launched on 3 Mar. 1961 at Tacoma for MDAP. Two were built by Petersen Builders Inc., Sturgeon Bay, Wisc., with 4 diesels driving two fixed-pitch propellers, and gas turbine generators for power mine-sweeping (MSC 292 and 293, for MAP) and MSC 294, 295, 296 and 297 for MAP, 145×27 feet, 362 tons full load. Tacoma Boatbuilding Co. built MSC 298-301; Stowman Shipbuilding Corp., N.J., built MSC 302-306; Petersen Builders built MSC 307-315.

Photographs

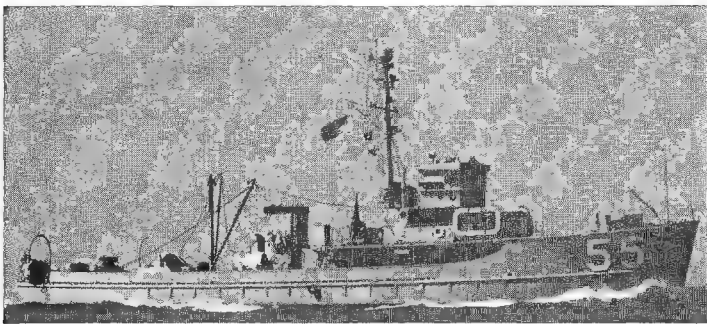
A port broadside view of *Bluebird* appears in the 1955-56 and 1956-57 editions, a port quarter oblique aerial view of *Jacana* in the 1957-58 edition, and a port bow oblique aerial view of *Cormorant* in the 1958-59 to 1961-62 editions.

Disposals and Reclassification of Motor Torpedo Boats

The four experimental motor torpedo boats of differing designs, PT 809, PT 810, PT 811, and PT 812, were stricken from the active list on 1 Nov. 1959 and reclassified as boats and not as service craft, naval vessels as before; but PT 810 and PT 811 were reactivated, re-designated PTF 1 and PTF 2 (fast patrol boats) and placed in active service with the fleet on 21 Dec. 1962, see next page, ex-PT 809 serves as "guard boat" for Presidential yachts at Washington, D.C., and ex-PT 812 was transferred to the U.S. Army at Philadelphia in Mar. 1963.

The wartime motor torpedo boats PT 616, PT 619 and PT 620, loaned to Korea in 1952, were also deleted from the list on 1 Nov. 1959.

COASTAL MINESWEEPERS (MSCO)



SEAGULL 1960, United States Navy, Official

8 "Albatross" Class

MSCO	MSCO	MSCO
47 FULMAR (ex-YMS 193)	49 LORIKEET (ex-YMS 271)	54 RUFF (ex-YMS 327)
24 LINNET (ex-YMS 395)	33 PLOYER (ex-YMS 442)	58 SISKIN (ex-YMS 425)
	51 REEDBIRD (ex-YMS 291)	56 TURKEY (ex-YMS 444)

Displacement:	270 tons standard (250 tons full load)
Dimensions:	136×24×8 (max.) feet
Guns:	1—40 mm. AA.
A/S weapons:	2 D.C.T.
Machinery:	2 G.M. diesels, 2 shafts, B.H.P.: 1,000=15 kts.
Oil fuel:	16 tons
Radius:	5,500 miles at economical speed
Complement:	34 (4 reserve officers, 9 regular men, 21 reserve men)

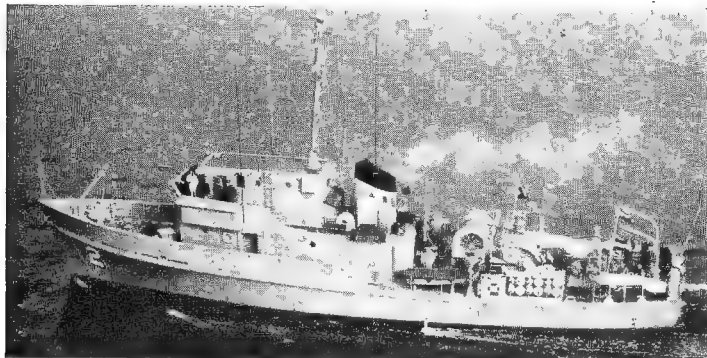
General
Coastal motor minesweepers of wooden construction. All launched in 1942-43. Formerly known as Auxiliary Motor Minesweepers (AMS). Reclassified as Minesweepers, Coastal (old), MSC(O), in Feb. 1955. *Maggie* (AMS 25) and *Partridge* (AMS 31) of this class struck floating mines and sank off the Korean east coast on 1 Oct. 1950 and 2 Feb. 1951, respectively. *Bobolink*, *Bunting*, *Gull*, *Merganser*, *Redhead*, *Sanderling* and *Waxbill* were converted into coastal minenunters in 1945-55. The eleven surviving boats of this formerly very numerous class were assigned to the mine warfare selected reserve program in 1960 with reserve crews.

Appearance
Only one-funnelled boats of this class now remain on the list, the two-funnelled boats and the no-funnel boats having been stricken, see below.

Transfers
Chatterer, *Condor*, *Firecrest*, *Heron*, *Osprey*, *Pelican* and *Swallow* were transferred to Japan in 1955. Many units of this type will be found also in other navies. *Curlew*, *Kite* and *Mocking-bird* were loaned to Korea on 6 Jan. 1956. *Hummer*, MSCO 20, and *Lark*, MSCO 23, were transferred to Japan in 1959. *Cardinal*, MSCO 4, and *Egret*, MSCO 46, to Brazil at Charleston, S.C., on 15 Aug. 1963 under MDAP. *Jackdaw*, MSCO 21, in Jan. 1963 and *Grackle*, MSCO 13, later in 1963.

Disposals
Albatross, MSCO 1, and *Hawk*, MSCO 17, were stricken from the Navy List in 1958. *Redpoll*, MSCO 57, on 1 July 1959. *Cardinal*, MSCO 4, *Courser*, MSCO 6, *Crow*, MSCO 7, *Flamingo*, MSCO 11, *Goldfinch*, MSCO 12, *Grosbeak*, MSCO 14, *Hornbill*, MSCO 19, *Ostrich*, MSCO 29, *Swan*, MSCO 37, *Verdin*, MSCO 38, *Barbet*, MSCO 41, *Brambling*, MSCO 42, *Brant*, MSCO 43, *Courlan*, MSCO 44, *Crossbill*, MSCO 45, *Egret*, MSCO 46, *Lapwing*, MSCO 48, *Nightingale*, MSCO 50, *Rhea*, MSCO 52, and *Seagull*, MSCO 55, on 1 Nov. 1959. *Flicker*, MSCO 9, and *Jackdaw*, MSCO 21, on 1 Jan. 1960. *Robin*, MSCO 53, in Aug. 1961. *Grouse*, MSCO 15, was destroyed after grounding at Rockport, Mass. on 21 Sep. 1963.

INSHORE MINESWEEPERS (MSI)



CAPE 1960, courtesy Mr. W. H. Davis

2 "Cove" Class

MSI 1 COVE	MSI 2 CAPE
Displacement:	120 tons light (249 tons full load)
Dimensions:	111½×23×5½ (10 max.) feet
Machinery:	2 G. M. Diesels, 1 shaft, B.H.P.: 650=12 kts.
Complement:	21 (3 officers, 18 men)

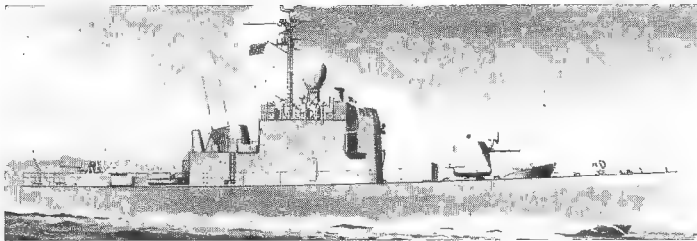
General
Provided under the 1956 Naval Appropriations. Prototypes to replace MSCs on inshore minesweeping duties. Similar in mission and construction to Minesweeping boats (MSB), see later page, but considerably larger. Cost \$750,000 plus \$350,000 for equipment.

Construction
Both built at the Bethlehem Shipyards Co., Bellingham, Washington. Laid down on 1 Feb. 1957 and 1 May 1957, respectively, launched on 8 Feb. 1958 and 5 Apr. 1958 and placed in service on 20 Nov. 1958 and 27 Feb. 1959, respectively.

MAP Program
MSI 3 to MSI 101 were built under the off-shore procurement program for MDAP. In Mar. 1962 Tacoma Boatbuilding Co. were awarded a contract for 2 MSI, 111×23 feet, 235 tons full load, for MAP. These, MSI 13 and MSI 14, were transferred to Iran under MAP in 1964.

Photographs
A larger port broadside view of Cove appears in the 1959-60 edition.

GUNBOATS (PGM)



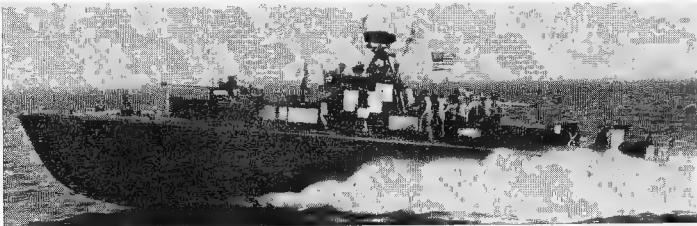
PGM 84 1963, United States Navy, Official

7+10 New Construction

PGM	PGM	PGM
84 ASHEVILLE	86 ANTELOPE	88 CROCKETT
85 GALLUP	87 READY	89 MARATHON
		90 CANON
Displacement:	225 tons standard (240 tons full load)	
Dimensions:	155 (o.a.)×23½×9½ (max.) feet	
Guns:	1—3 inch, 50 cal.; 1—40 mm. AA.; 2—50 cal. M.G.	
Machinery:	CODAG (combined diesel and gas turbine), 2 diesels, H.P.: 1,750=30 kts. cruising plus 1 gas turbine, H.P.: 13,500=40 to 50 kts. (max.).	
Radius:	1,700 miles at 16 kts.; 325 miles at 35 kts.	
Complement:	24, (3 officers, 21 men).	

General
A new class of gunboats, of aluminium construction with a scheduled eventual total of 24 boats. The new design emphasises cruising endurance, seaworthiness and payload capability to provide a relatively high speed craft with maximum simplicity and ease of maintenance compatible with these features. *Asheville* was laid down in 15 Apr. 1964 and launched on 1 May 1965. *Gallup* was laid down on 27 Apr. 1964 for launching on 9 June 1965. All built by Tacoma Boatbuilding Co., Inc., Wash. *Antelope* and *Ready* authorised in F.Y. 1964. PGM 88, 89 and 90 in 1965, ten more in 1966. Two hydrofoil gunboats, PGH, are also in the 1966 Programme.

FAST PATROL BOATS (PTF)



PTF 4 1965, Boat Service Ltd, A/S.

14 "Nasty" Type

PTF 3	PTF 5	PTF 7	PTF 9	PTF 11	PTF 13	PTF 15
PTF 4	PTF 6	PTF 8	PTF 10	PTF 12	PTF 14	PTF 16
Displacement:	64 tons light, 69 tons standard (76 tons full load)					
Dimensions:	75½ (pp.), 80½ (o.a.)×24½×6½ feet					
Guns:	2—40 mm. AA. (single); 2—20 mm. AA. (single)					
Machinery:	2 Napier-Deltic diesels, B.H.P.: 6,200=45 kts.					
Complement:	19 (3 officers, 16 men)					

General
Built by Båtservice Verft A/S. PTF 3 and PTF 4 were delivered to the U.S.A. in Dec. 1962 and armament and electronic equipment installed in the U.S.A. in 1963. PTF 5, 6, 7 and 8 were acquired and designated on 1 Mar. 1964. The acquisition of PTF 9, 10, 11, 12, 13, 14, 15 and 16 was announced on 2 Sep. 1964.



PTF 2 (ex-PT 811) Added 1963, United States Navy, Official

2 Ex-PT Type

PTF 1	PTF 2
(ex-PT 810)	(ex-PT 811)
Displacement:	58 tons light (75 tons full load)
Dimensions:	85 (w.l.), 105 (o.a.)×22×6 feet
Guns:	2—40 mm. AA. (single); 4—20 mm. AA. (2 twin)
Machinery:	4 Packard, 4 shafts, B.H.P.: 10,000=45 kts.
Complement:	17 (3 officers, 14 men)

General
PTF 1, built by Bath Iron Works and launched on 2 June 1950, is aluminium hulled, half-welded and half-riveted. PTF 2 built by John Trumpy & Sons, Annapolis, launched on 30 Nov. 1950 and accepted on 6 Mar. 1951, is also of aluminium construction. Both were stricken from the Navy List on 1 Nov. 1959. Converted from PT to PTF (fast patrol boat) in 1962, torpedo tubes being removed to decrease weight and increase speed. Reinstated on Navy List on 21 Dec. 1962. To be stricken in 1965 and expended as targets.

HYDROFOIL RESEARCH SHIP (AGEH)

I New Construction (Experimental)

AGEH 1 PLAINVIEW	
Displacement:	320 tons full load
Dimensions:	212 (o.a.) × 40½ × 10 (foils extended), 26 (foils withdrawn)
Machinery:	2 gas turbines, H.P.: 28,000; 2 diesels, H.P.: 1,200

General
Experimental Hydrofoil, Aluminium. Three retractable foils, 25 ft. in height, each weighing 7 tons. Initial maximum speed of about 50 knots, with later modifications expected to raise the speed to 80 knots. Power plant and transmission designed to permit future investigation of various types of foils. Built by Lockheed Shipbuilding & Construction Co., Seattle, Washington, for \$11,795,000. Laid down on 8 May 1964 for launch on 1 June 1965, and commissioning in Feb. 1966.

DOCK LANDING SHIPS (LSD)



HERMITAGE (helicopter aboard) 1964, A. & J. Pavia

8 "Thomaston" Class

LSD	LSD
28 THOMASTON (9 Feb. 1954)	32 SPIEGEL GROVE (10 Nov. 1955)
29 PLYMOUTH ROCK (7 May 1954)	33 ALAMO (20 Jan. 1956)
30 FORT SNEILING (16 July 1954)	34 HERMITAGE (12 June 1956)
31 POINT DEFIANCE (28 Sep. 1954)	35 MONTICELLO (10 Aug. 1956)
Displacement:	5,880 tons light (11,270 tons full load) Alamo, Hermitage, Monticello, Spiegel Grove; 12,150 tons full load
Dimensions:	510 (o.a.) \times 84 \times 19 (max.) feet
Guns:	12—3 inch, 50 cal. (See Gunnery)
Machinery:	Steam turbines, 2 shafts. S.H.P.: 23,000—24 kts.
Boilers:	2
Complement:	305 plus 100 marines

General

Larger and faster than earlier types. Built by Ingalls' Shipbuilding Corp. Fitted with helicopter landing platforms, and two 50 ton cranes. 21 LCM (6) or 3 LCU and 6 LCM, and 3 to 8 helicopters can be carried. Launch dates above.

Gunnery

Two twin 3 inch, 50 cal. mountings were removed in 1962.

Photographs

A photograph of Thomaston appears in the 1955-56 to 1959-60 editions, and of Monticello in the 1960-61 to 1963-64 editions.

1+3 New Construction

Displacement:	13,650 tons full load
Dimensions:	555 \times 84 feet
Guns:	8—3 inch, 50 cal. (4 twin)

General

One authorised in the Fiscal Year 1965 Programme. An improved version of the "Thomaston" class, designed to carry 40 helicopters with seven on the flight deck. Three more in the 1966 Programme.



DONNER (helicopter aft.) 1965, Dr. Georgio Arra

13 "Cabildo" Class

LSD	LSD
16 CABILDO (28 Dec. 1944)	22 FORT MARION (22 May 1945)
13 CASA GRANDE (ex-Spear, ex-Portway, 11 Apr. 1944)	14 RUSHMORE (ex-Sword, ex-Swashway, 10 May 1944)
17 CATAMOUNT (27 Jan. 1945)	25 SAN MARCOS (10 Jan. 1945)
18 COLONIAL (28 Feb. 1945)	15 SHADWELL (ex-Tomahawk, ex-Waterway, 24 May 1944)
19 CUNNINGHAM (28 Apr. 1945)	26 TORTUGA (21 Jan. 1945)
20 DONNER (6 Apr. 1945)	27 WHETSTONE (18 July 1945)
21 FORT MANDAN (1945)	
Displacement:	4,790 tons standard (9,375 tons full load)
Dimensions:	475 $\frac{1}{2}$ (o.a.) \times 72 $\frac{1}{2}$ \times 18 (max.) feet
Guns:	12—40 mm. AA.
Machinery:	Geared turbines, 2 shafts. S.H.P.: 7,000 15.4 kts.
Boilers:	2, two-drum single pass
Complement:	265 (15 officers, 250 men)

General

Built by Newport News (13, 14, 15, 16, 17, 18, 19), Boston Navy Yard (20, 21, 26, 27), Gulf S.B. Corp. (22) and Philadelphia Navy Yard (25) Similar to "Ashland" class. Can carry 3 LCUs or 18 LCMs. In this class the 5-inch gun and all 20 mm. guns have been removed. All ships are fitted with helicopter platforms. (Fort Snelling, LSD 23, is now the cargo ship Taurus, T-AK 273, see later page.)

Catamount, LSD 17, Colonial, LSD 18, Donner, LSD 20, Fort Mandan, LSD 21, and Fort Marion, LSD 22, were modernised under the FRAM Mark II Program in 1960-62. Donner, LSD 20, and Shadwell, LSD 15, are fitted as amphibious assault carriers for marine helicopter operations.

Photographs

A photograph of Rushmore appears in the 1952-53 to 1959-60 editions, and of Catamount and Fort Mandan in the 1947-43 to 1951-52 editions.

7 "Ashland" Class

LSD	LSD
1 ASHLAND (21 Dec. 1942)	5 GUNSTON HALL (1 May 1943)
2 BELLE GROVE (17 Feb. 1942)	6 LINDENWALD (11 June 1943)
3 CARTER HALL (4 Mar. 1943)	7 OAK HILL (25 June 1943)
MCS 7 (ex-LSD 4) EPPING FOREST (2 Apr. 1943)	
Displacement:	4,790 tons standard (8,700 tons limit) Gunston Hall, Lindenwald, 5,380 tons standard, (9,200 tons full load)
Dimensions:	454 (w.l.), 475 $\frac{1}{2}$ (o.a.) \times 72 \times 18 feet
Guns:	12—0 mm. AA.
Machinery:	2 Skinner Unaflow, 2 shafts. I.H.P.: 7,400=13 kts.
Boilers:	2, of 2-drum type
Complement:	15 officers, 250 men (total accommodation 326)

General

All built by Moore Dry Dock Co. Designed to serve as parent ships for landing and coastal craft. Gunston Hall and Lindenwald were adapted to Arctic service in 1949. The 5-inch gun and all 20 mm. guns were removed. All carry 18 flat nosed LCMs (Landing Craft Medium) or 3 LCUs in their well-decks running three-quarters of their length. Length of well in open 252 feet, width of well 44 feet. In each LCM a smaller LCVP (Landing Craft, Vehicle-Personnel) can be carried. All fitted with a helicopter landing platform over the well-deck. Epping Forest, employed as a minecraft tender in the Far East, was reclassified as MCS 7 on 30 Nov. 1962.

Oak Hill, LSD 7, was modernised under the FRAM Mark II Programme in 1960 and Belle Grove, LSD 2, in 1961.

Photographs

A photograph of Ashland appears in the 1960-61 to 1964-65 editions.

Dock Landing Ships—continued

OAKHILL 1965, United States Navy Official
Transfer
White Marsh, LSD 8, was transferred to Taiwan, China on 17 Nov. 1960.

TANK LANDING SHIPS (LST)

1+8 New Construction

Displacement:	8,342 tons full load (revised figures)
Dimensions:	518 \times 68 feet
Guns:	4—3 inch, 50 cal. (2 twin)
Machinery:	Diesels designed for a sustained speed of 20 kts.
Complement:	231 (14 officers, 217 men). Accommodation for 430 troops

General

One authorised in the Fiscal Year 1965 Programme. Prototype of a new class. Bow ramp for unloading onto a pontoon causeway to the beach. Stern ramp for loading and unloading amphibious vehicle in deep water. Being built by Philadelphia Naval Shipyard for completion in May 1968. Eight more in the 1966 Programme.



DE SOTO COUNTY 1965, direct from Commanding Officer, U.S.S. De Soto County

7 "Suffolk County" Class

LST	LST
1171 DE SOTO COUNTY (28 Feb. 1957)	1175 YORK COUNTY (5 Mar. 1957)
1173 SUFFOLK COUNTY (5 Sep. 1956)	1176 GRAHAM COUNTY (19 Sep. 1957)
1174 GRANT COUNTY (12 Oct. 1956)	1177 LORAIN COUNTY (22 June 1957)
	1178 WOOD COUNTY (14 Dec. 1957)
Displacement:	4,164 tons light (8,000 tons full load)
Dimensions:	442 (o.a.) \times 62 \times 16 $\frac{1}{2}$ feet
Guns:	6—3 inch, 50 cal. (3 twin)
Machinery:	Diesel (Graham County 4 Nordberg, 2 per shaft, others 6, 3, per shaft). H.P.: 14,400=16 kts.
Complement:	184 (10 officers, 174 men)

General

Greater speed, size and troop capacity than previous LSTs Suffolk County was built by Boston Navy Yard, Lorain County and Wood County by American Shipbuilding Co. Lorrain, Ohio, De Soto County and Grant County by Avondale Marine Ways, New Orleans, Louisiana, York County and Graham County by Newport News Shipbuilding & Dry Dock Co., Virginia. Contract for LST 1172 not awarded. Suffolk County commissioned on 15 Aug. 1957, De Soto County on 10 June 1958, Graham County on 14 Apr. 1958, Lorain County on 30 Aug. 1958, Wood County on 5 Aug. 1959. Air-conditioned. Controllable pitch propellers. Launch dates above.

Photographs

A photograph of Suffolk County appears in the 1959-60 editions, and of York County in the 1960-61 to 1964-65 editions.



TOM GREEN COUNTY 1965, United States Navy, Official

15 "LST 1156-1170" Series

LST	LST
1156 TERREBONNE PARISH	1163 WALDO COUNTY
1157 TERRELL COUNTY	1164 WALWORTH COUNTY
1158 TIOGA COUNTY	1165 WASHOE COUNTY
1159 TOM GREEN COUNTY	1166 WASHTEANAW COUNTY
1160 TRAVERSE COUNTY	1167 WESTCHESTER COUNTY
1161 VERNON COUNTY	1168 WEXFORD COUNTY
1162 WAHIAKUM COUNTY	1169 WHITFIELD COUNTY
	1170 WINDHAM COUNTY
Displacement:	2,590 tons light (5,800 tons full load)
Dimensions:	384 (o.a.) \times 55 \times 17 feet
Guns:	6—3 inch, 50 cal. (3 twin)
Machinery:	4 G.M. diesels, 2 shafts. Controllable pitch propellers. B.H.P.: 6,000=15 kts.
Complement:	116

General

Design is modification of that of two experimental ships constructed during the Second World War. LST 1156 was launched on 9 Aug. 1952. 1158 on 11 Apr. 1953, 1163 on 17 Mar. 1953, 1156-1160 were built by Bath Iron Works, 1166-1170 by Christy Corporation, and 1161-1165 by Ingalls' Shipbuilding Corporation.

Photographs

A photograph of Tioga County appears in the 1954-55 to 1959-60 editions, and of Waldo County in the 1960-61 to 1964-65 editions.

Tank Landing Ships (LST)—continued



TALBOT COUNTY (steam type) 1960, United States Navy Official
2 Steam Type
LST 1153 TALBOT COUNTY AVB 2 TALLAHATCHIE COUNTY
(ex-LST 1154)

Displacement: 2,324 tons (6,000 tons full load)
Dimensions: 368 (w.l.), 382 (o.a.)×54×17 feet
Guns: 2—5 inch. 38 cal., 4—40 mm. AA.
Machinery: Geared turbines. 2 shafts. S.H.P.: 6,000=14 kts.
Complement: 82

General
Built by Boston Navy Yard. *Talbot County* was launched on 24 Apr. 1947 and completed on 3 Sep. 1947; *Tallahatchie County* was launched on 19 July 1946 and completed on 9 June 1949. They are the only steam powered LSTs. This type can carry 4 small landing craft and has increased troop accommodation, greater tank vehicle and cargo capacity and improved arrangements for discharge, compared with the "LST 1-1152" class.

Conversion
Tallahatchie County was converted to an advance aviation base ship, AVB, at the Naval Shipyard, Charleston, S.C., in the Fiscal Year 1960 conversion programme, and recommissioned on 20 Jan. 1962. Conversion completed on 13 Mar. 1962. Fitted with new all aluminium superstructure, maintenance shops, communications, weather forecasting, briefing rooms and a portable tower for aircraft control. Accommodation for 270 man aircraft squadron in addition to crew of 15 officers and 200 men.

Photographs
A larger starboard broadside surface view of *Talbot County* appears in the 1959-60 and earlier editions.



POLK COUNTY 1961, United States Navy, Official

70 LST 511-1152 Series

- | | |
|------------------------------|------------------------------------|
| LST | LST |
| 515 CADDOPARISH | 901 LITCHFIELD COUNTY |
| 525 CAROLINE COUNTY | 902 LUZERNE COUNTY |
| 532 CHASE COUNTY | 905 MADERA COUNTY |
| 533 CHEBOYGAN COUNTY | 912 MAHOMEN COUNTY |
| 551 CHESTERFIELD COUNTY | 980 MEEKER COUNTY |
| 583 CHURCHILL COUNTY | 983 MIDDLESEX COUNTY |
| 601 CLARKE COUNTY | 1032 MONMOUTH COUNTY |
| 602 CLEARWATER COUNTY (USAF) | 1066 NEW LONDON COUNTY |
| 603 COCONINO COUNTY | 1067 NYE COUNTY |
| 715 DE KALB COUNTY | MCS 6 (ex-LST 1069) ORLEANS PARISH |
| 722 DODGE COUNTY | 1073 OUTAGAMIE COUNTY |
| 758 DUVAL COUNTY | 1076 PAGE COUNTY |
| 762 FLOYD COUNTY | 1077 PARK COUNTY |
| 783 GARRETT COUNTY | 1082 PITKIN COUNTY |
| 819 HAMPSHIRE COUNTY | 1083 PLUMUS COUNTY |
| 821 HARNETT COUNTY | 1084 POLK COUNTY |
| 822 HARRIS COUNTY (MSTS) | 1088 PULASKI COUNTY |
| 824 HENRY COUNTY | 1096 ST. CLAIR COUNTY |
| 825 HICKMAN COUNTY | 1122 SAN JOAQUIN COUNTY |
| 836 HOLMES COUNTY | 1123 SEDGWICK COUNTY |
| 838 HUNTERDON COUNTY | 1126 SNOHOMISH COUNTY |
| 839 IREDELL COUNTY | 1134 STARK COUNTY |
| 846 JENNINGS COUNTY | 1141 STONE COUNTY |
| 848 JEROME COUNTY | 1146 SUMMIT COUNTY |
| 854 KEMPER COUNTY | 1148 SUMNER COUNTY |
| | 1150 SUTTER COUNTY |

Displacement: 1,653 tons standard, 2,366 beaching, (4,080 full load)
Dimensions: 316 (w.l.), 328 (o.a.)×50×14 feet
Guns: 7—40 mm. AA., 2—20 mm. AA.
Machinery: G.M. diesels. 2 shafts. B.H.P.: 1,700=11.6 kts.
Complement: 119 (accommodation for 266)

General
All LSTs listed above and on previous page which previously carried numbers only, were named on 1 July 1955. Cargo capacity 2,100 tons.

Unnamed Ships
Following LSTs assigned to MSTS and unarmed: 13 Japanese-manned, LSTs 530, 550, 572, 579, 581, 587, 600, 607, 613, 623, 629, 630, 649. Five others: LSTs 546, 566, 590, 626 643, are in reserve in Japan. LST 1072, (unnamed) is on loan to the U.S. Air Force.

Photographs
A photograph of *St. Clair County* appears in the 1958-59 and 1959-60 editions of *Sublette County* in the 1954-55 to 1957-58 editions, and of *St. Clair County* in the 1960-61 to 1963-64 editions.

Reclassification
Orleans Parish was reclassified from LST 1069 to MCS 6 on 19 Jan. 1959.

Modernisation
Holmes County, LST 836, *Polk County*, LST 1084, *Stone County*, LST 1141, and *Summer County*, LST 1148, were modernised in the 1960 FRAM Mark II programme.

Tank Landing Ships—continued



TALLAHATCHIE COUNTY (see Col. 1) 1965, A. & J. Pavia

Transfers
LST 1010 was transferred to Korea on 22 Mar. 1955, LST 840 *Iron County*, LST 859 *Lafayette County*, LST 1110 *San Bernardino County*, LST 1091 *Sagadahoe County* and LST 1152 *Sweetwater County* to Nationalist China in 1958. LST 849 *Johnson County*, LST 853 *Kane County*, LST 900 *Lynn County* and LST 1080 *Pender County* to Korea in 1958, LST 512 *Burnett County* to Peru in 1958, *Solana County*, LST 1128, to Indonesia in 1960, *Hamilton County*, LST 802, to Japan in 1960, *Potter County*, LST 1086, to Greece in 1960, LST 849 to Korea, LST 520, LST 535, LST 578 and LST 735 to Taiwan, *Greer County*, LST 799, *Rice County*, LST 1089, and *Saline County*, LST 1101 to West Germany in 1961, *Lawrence County*, LST 887 and *Russell County*, LST 1090 to Indonesia, *Doggett County*, LST 689, *Hillsdale County*, LST 835, and *Nansemond County*, LST 1064 to Japan in 1961, *Sublette County*, LST 1144, to Taiwan China in Jan. 1961, *Millard County*, LST 987, and *Montgomery County*, LST 1041 to West Germany in 1961. LST 616, LST 652 and LST 657 to Indonesia in 1961, *Lincoln County*, LST 898 to Thailand in 1962, *Marricopa County*, LST 938 and *Marlon County*, LST 975 to Vietnam in 1962, and *Cayuga County*, LST 529, in 1963.

Disposals
LST 983 *Mineral County* was destroyed as a target for gunfire, LST 772 *Ford County*, LST 855 *Kent County*, and LST 1068 *Orange County* were disposed of in 1951, LST 527 *Cassia County*, LST 803 *Hampden County* and LST 827 *Hillsborough County* in 1958, LST 561 *Chittenden County* after grounding at Kauai, T.H., in Mar. 1958, (salvaged after stranding, but torpedoed by the submarine *Sargo* off Oahu in Nov. 1958) *Lyman County*, LST 903, and *Lyon County*, LST 904, were sunk as targets in 1959, *Calaveras County*, LST 516, *Crook County*, LST 611, *Eddy County*, LST 759, *Esmeralda County*, LST 761, *Garfield County*, LST 784, *Gibson County*, LST 794 were stricken in 1959, *Cape May County*, LST 521, *Catahoula Parish*, LST 528, *Chelan County*, LST 542, *Curry County*, LST 685, *Douglas County*, LST 731, *Juniata County*, LST 850, *Lake County*, LST 880, *Lamoure County*, LST 883, *Lee County*, LST 888, *Mahoning County*, LST 914, *Marinette County*, LST 953, *Morgan County*, LST 1048, *Ouachita County*, LST 1071 *Overton County*, LST 1074, *Payette County*, LST 1079, *Pima County*, LST 1081, *Somervell County*, LST 1129, and *Stratford County*, LST 1142, between 1 June and 30 June 1960. *King County*, AG 157 (ex-LST 857) and LST 618 in 1960, *Jefferson County*, LST 845, *Steuben County*, LST 1138, LST 664 and *Dunn County*, LST 742, were stricken in 1961, *Calhoun County*, LST 519, in Nov. 1962, *Daviess County*, LST 692, in June 1964.



BLANCO COUNTY 1964, courtesy "Our Navy"

13 LST 1-510 Series

LST 344 BLANCO COUNTY	LST 509 BULLOCH COUNTY
Displacement:	1,625 tons light, 2,366 tons beaching (4,050 tons full load)
Dimensions:	328 (o.a.)×50×14½ (max.) feet
Guns:	7—40 mm. AA., 2—20 mm. AA.
Machinery:	G.M. diesels. 2 shafts. B.H.P.: 1,700=10.8 kts.
Complement:	80 to 119 (plus 147 troops)

General
These ships are ocean tank carriers with bow doors. In the Second World War LST 32 was fitted with railway lines on the tank deck to enable her to transport trucks from Sicily to the mainland. She was converted to Naval Air Force Atlantic, Flagship in 1953. Fitted for advanced base air support, she carried 2 LCM on deck.

Unnamed Ships
Following assigned to MSTS and unarmed: 10 Japanese manned, LSTs 47, 117, 176, 230, 276, 277, 399, 456, 488, 491. LST 222 is in reserve in Japan.

Transfers
LST 53 was transferred to Korea. LST 227 *Berkeley County* and LST 400 *Bradley County* to Taiwan China. LST 503 to Taiwan on 29 Apr. 1955, LST 218 and LST 227 to Korea in 1955 and LST 288 *Berkshire County* on 5 Mar. 1956, LST 503 to Taiwan, *Boone County*, LST 389, and *Bowman County*, LST 391, to Greece in 1960, *Alameda County* reclassified from LST 32 to AVB 1 (Advance Aviation Base Ship) to Italy in Nov. 1962, LST 325 to Greece on 29 May 1964.

Disposals
LST 291 was stricken after grounding in 1954. LST 31 *Addison County*, LST 57 *Armstrong County*, LST 482 *Branch County*, LST 483 *Brewster County* and LST 504 *Buchanan County* were stricken on 11 Aug. 1955 and used as targets. *Atchison County*, LST 60, *Bamberg County*, LST 209, *Benton County*, LST 263, *Benzie County*, LST 266, *Bernalillo County*, LST 306, *Bledsoe County*, LST 356, and *Buncombe County*, LST 510, on 1 June 1959 and 30 June 1960. LST 287 in Sep. 1962.

ATTACK TRANSPORTS (APA)



PAUL REVERE Added 1965, United States Navy, Official



FRANCIS MARION 1962, United States Navy, Official

2 "Paul Revere" Class

APA 249 FRANCIS MARION (ex-SS *Prairie Mariner*)
APA 248 PAUL REVERE (ex-SS *Diamond Mariner*)
Displacement: 10,709 tons light (18,000 tons full load)
Measurement: 16,838 tons gross
Dimensions: 528 (pp.), 563½ (o.a.) × 76 × 24½ feet
Guns: 4—3 inch, 50 cal. in two twin mountings
Machinery: G.E. geared turbines. 1 shaft. S.H.P.: 19,250=20 kts.
Complement: 414 (35 officers, 379 men)

General
Paul Revere is a C4-S-1 type cargo vessel converted into an Attack Transport by Todd Shipyard Corp., San Pedro, Calif., under the 1957 Fiscal Year Conversion Programme. Contract was awarded in Aug. 1956. Commissioned on 3 Sep. 1958 and completed on 29 Sep. 1958. She has accommodation for a 1,500 strong Marine Battalion, a helicopter platform on the stern for troop helicopters, and is fitted as an Amphibious Command Flagship. *Francis Marion* was a similar "Mariner" type hull converted into an APA by Bethlehem Steel, Key Highway Yard, Baltimore, Md., under the Fiscal Year 1959 Programme (conversion started on 13 Apr. 1959 and the ship was commissioned on 6 July 1961). Both ships were originally built by New York Shipbuilding Corporation, Camden, *Francis Marion* in 1954 and *Paul Revere* in 1953.



ROCKBRIDGE 1965, Dr. Giorgio Arra

13 "Haskell" Class

APA 237 BEXAR 195 LENAWEE 199 MAGOFFIN 212 MONTROSE	APA 213 MOUNTRAIL 215 NAVARRO 220 OKANOGAN 222 PICKAWAY	APA 227 RENVILLE 228 ROCKBRIDGE 194 SANDOVAL 208 TALLADEGA 210 TELFAIR
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Displacement: 6,720 tons light, (12,450 tons full load)
Dimensions: 436½ (w.l.), 455 (o.a.) × 62 × 24 feet
Guns: 12—40 mm. AA. (see *Gunnery*)
Machinery: Geared turbines. S.H.P.: 8,500=17.7 kts.
Boilers: 2 Babcock & Wilcox
Complement: 536

General
VC 2-S-AP 5 "Victory" type, all launched in 1944-45. All have County names. Can carry 1,560 troops and 3,000 tons of war stores. *Mountrail*, 213, *Sandoval*, 194, and *Telfair*, 210, were reacquired from the Maritime Administration in 1961, re-instated on the Navy List and recommissioned. *Renville* and *Talladega* to decommission in 1966.

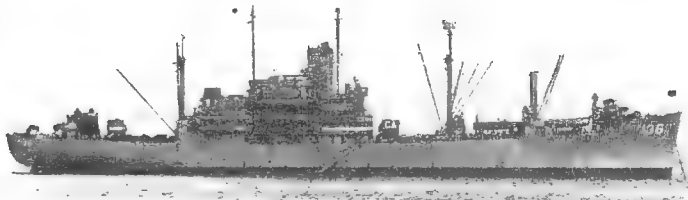
Gunnery
The 5-inch gun was removed. Scheduled to be replaced by a twin 3-inch, 50 cal.

Photographs
A photograph of *Pickaway* appears in the 1953-54 to 1958-59 editions, of *Olmsted* in the 1959-60 edition and of *Okanogan* in the 1960-61 to 1964-65 editions.

Transfer
Noble, APA 218, was decommissioned on 1 July 1964 and transferred to Spain.

Disposals
Arenac, 128, *Barnwell*, 132, *Bronx*, 236, *Brookings*, 140, *Clinton*, 144, *Crockett*, 148, *Dane*, 238, *Edgcombe*, 164, *Gage*, 168, *Grimes*, 172, *Kershaw*, 176, *Lavaca*, 180, *Lubbock*, 197, *McCracken*, 198, *Menifee*, 202, *Meriwether*, 203, *Mifflin*, 207, *Missoula*, 211, *Natrona*, 214, *Nesheba*, 216, *New Kent*, 217, *Okaloosa*, 219, *Oneida*, 221, *Rawlins*, 226, *Rockingham*, 229, *Rutland*, 192, *San Saba*, 232, *Sherburne*, 205, *Sibley*, 206, and *Tazewell*, 209 (30 attack transports, APAs), were stricken from the Navy List and transferred to the Maritime Administration Reserve Fleet in 1959. *Deuel*, 160, *Logan*, 196, *Rockwall*, 230, were transferred to Maritime Administration in 1960. *Deuel* and *Rockwall* were stricken on 1 Dec. 1958. *Glynn*, 239, *Latimer*, 152, *Mellette*, 201, *Olmstead*, 188, *Randall*, 224, *Sanborn*, 193, *Sarasota*, 204, were disposed of in 1961, and *Botetourt*, 136, *Bottineau*, 235, *Menard*, 201, were stricken from the Navy List and transferred to the Maritime Administration Reserve Fleet in 1961.

Attack Transports—continued



CAMBRIA 1964, Captain Aldo Fraccaroli

"6 Bayfield" Class

APA 33 BAYFIELD (ex-Sea Bass) 36 CAMBRIA (ex-Sea Swallow) 37 CAVALIER (15 Mar. 1943)	APA 38 CHILTON (ex-Sea Needle, 24 Dec. 1942) 44 FREMONT (ex-Sea Corsair, 31 Mar. 1943) 45 HENRICO (ex-Sea Darter, 31 Mar. 1943)
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Displacement: 8,100 tons light (16,100 tons full load)
Dimensions: 465 (w.l.), 492 (o.a.) × 69½ × 26½ feet
Guns: 2—5 inch, 4—40 mm. AA.
Machinery: Geared turbines. S.H.P.: 8,500=18.4 kts.
Boilers: 2 Combustion Engineering type
Complement: 250 (554 total accommodation)

General
C3-S-A2 type, formerly with "Sea" names; but subsequently given County names by the United States Navy.

Photographs
A starboard broadside surface view of *Chilton* appears in the 1952-53 to 1959-60 editions and a port broadside aerial view of *Henrico* in the 1960-61 to 1963-64 editions.



MONROVIA 1963, Giorgio Ghiglione

2 "Delta" Class

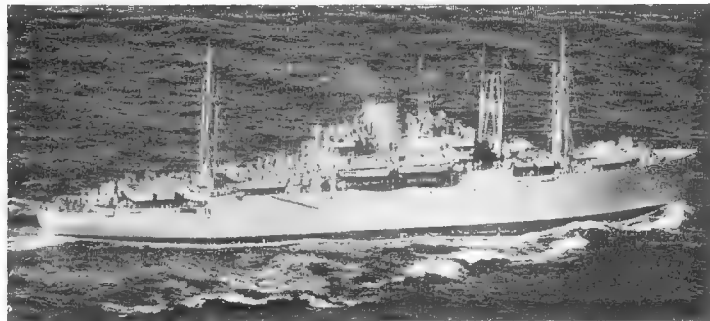
APA 32 CALVERT (ex-Deloreans, 29 May 1943)	APA 31 MONROVIA (ex-Delargentino, 1942)
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Displacement: 8,429 tons light (14,247 tons full load)
Dimensions: 468 (pp.), 491 (o.a.) × 65½ × 25½ feet
Guns: 1—5 inch 3—3 inch, 4—40 mm. AA.
Machinery: Geared turbines. S.H.P.: 7,800=16 kts.
Boilers: 2 Babcock & Wilcox
Complement: 555 (total accommodation)

General
C3 Delta type, formerly with "Del" names. Can carry 1,455 troops. Built by Bethlehem, Sparrows Point. *Calvert* is to decommission in 1966.

Photographs
A port quarter oblique aerial view of *Calvert* appears in the 1957-58 to 1962-63 editions.

Disposals
Charles Carroll, APA 28, and *Crescent City*, APA 21, were stricken from the Navy List in 1959, and transferred to the Maritime Administration Reserve Fleet.



GEORGE CLYMER United States Navy, Official

1 "American" Class

APA
27 GEORGE CLYMER (ex-African Planet, ex-American Former)

Displacement: 10,812 tons light (18,000 tons full load)
Dimensions: 465 (w.l.), 489 (o.a.) × 69½ × 27½ feet
Guns: 4—3 inch, 6—40 mm. AA.
Machinery: Geared turbines. S.H.P.: 8,500=18.4 kts.
Complement: 512

General
C-3P type. Can carry 27 landing craft and 1,400 troops. Fitted as a flagship. Launched in 1941.

Disposals
Arthur Middleton, APA 25, and *Samuel Chase*, APA 26, of the "American" class, and *President Adams*, APA 19, *President Hayes*, APA 20, *President Jackson*, APA 18, and *Thomas Jefferson* (ex-President Garfield), APA 30 (of the "President" class), were stricken from the Navy List in 1959 and transferred to the Maritime Administration Reserve Fleet.

ATTACK CARGO SHIPS (AKA)



TULARE 1960, United States Navy, Official

1 "Tulare" Class

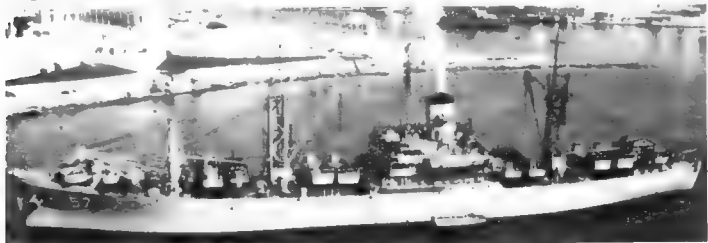
AKA 112 TULARE (ex-Evergreen Mariner)
Displacement: 12,000 tons light (17,988 tons full load)
Measurement: 9,200 tons gross, 13,400 tons deadweight
Dimensions: 528½ (pp), 564 (o.a.) x 76 x 24½ (28 max.) feet
Guns: 12—3 inch, 50 cal. in six twin mountings
Machinery: Turbine, 1 shaft, S.H.P.: 22,000—20 kts.
Complement: 38 officers, 399 men

General
Built by Bethlehem, San Francisco. Laid down on 16 Feb. 1953, launched on 22 Dec. 1953; Acquired by Navy during construction. Commissioned on 13 Jan. 1956. C4-S-1 B type. Has helicopter landing platform and booms capable of lifting 60-ton landing craft. Carries 9 LCM-6 landing craft. Can carry 575 troops and crew, 27 landing craft and 300 vehicles.

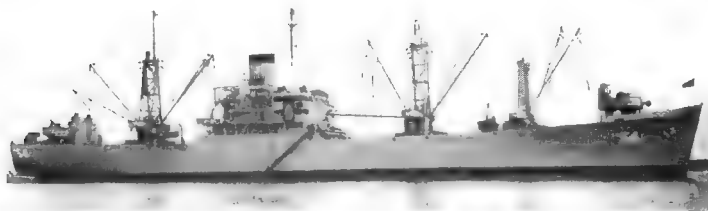
4+1 New Construction

AKA 113	AKA 114	AKA 115	AKA 116
Displacement:	20,700 tons full load		
Dimensions:	580 x 82 feet		
Guns:	8—3 inch (4 twin)		

General
Four authorized in the Fiscal Year 1965 Programme. Equipped with helicopter platform. To be built by Newport News Shipbuilding & Dry Dock Co. Another AKA is in the 1956 Programme.



CAPRICORNUS 1965, A. & J. Parvia



ALGOL 1960, United States Navy, Official

12 "Andromeda" Class

AKA 54 ALGOL (ex-James Baines)	AKA 100 OGLETHORPE (15 Apr. 1945)
56 ARNEB (ex-Mischief)	19 THUBAN (26 Apr. 1943)
57 CAPRICORNUS (ex-Spitfire)	88 UVALDE (ex-Wild Pigeon) (20 May 1944)
96 MATTHEWS (22 Dec. 1944)	94 WINSTON (30 Nov. 1944)
97 MERRICK (28 Jan. 1945)	92 WYANDOT (28 June 1944) USNS
61 MULIPHEN (26 Aug. 1944)	93 YANCEY (8 July 1944)
Displacement:	7,430 tons light (12,800 tons full load)
Dimensions:	435 (wl.), 459½ (o.a.) x 63 x 24 (max.) feet
Guns:	8—40 mm. AA. (see General)
Machinery:	Geared turbines. S.H.P.: 6,000=16.4 kts.
Boilers:	2 Foster-Wheeler
Complement:	247

General
C2-S-B1 type. Launch dates above. Can carry over 5,200 tons of cargo and 2,200 tons of tanks. Arneb completed refit for Arctic service on 15 Mar. 1949. Wyandot was also "winterised" with double hull plating. Matthews and Merrick were re-acquired from the Maritime Administration Reserve Fleet by the Navy in 1951, and reactivated. Algol, 54, Ulvade, 88, Winston, 94, Wyandot, 92, Yancey, 93, were re-acquired, reinstated on the Navy List, and recommissioned in 1961. Wyandot was assigned to MST5 in 1963, designated USNS, with a civil service crew, unarmed. The 5 inch gun has been removed from all active units of the "Andromeda" and "Rankin" classes and is scheduled to be replaced by a twin 3 inch mounting.

Photographs
Larger photographs of Arneb and Matthews appear in the 1957-58 edition and of Wyandot in the 1958-59 and 1959-60 editions.

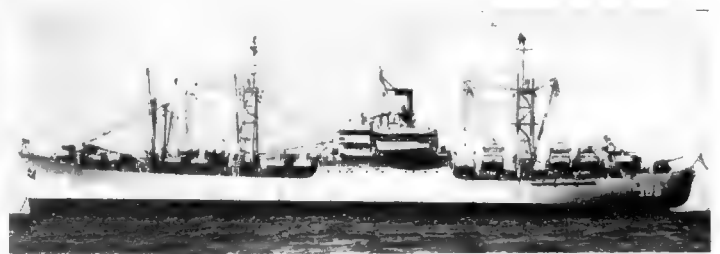
Transfers
Whitley, AKA 91, was transferred to Italy in 1962, and Acheron, AKA 53, to Spain on 2 Feb. 1965.

Disposals
Alshain, 55, Andromeda, 15, Chara, 58, Leo, 60, Marquette, 95, Montague, 98, Rolette, 99, were disposed of in 1961. Diphda, 59, Virgo, 20, Warrick, 89, and Whiteside, 90, were stricken from the Navy List and transferred to the Maritime Administration Reserve Fleet in 1961.

Disposals of other classes
Of the "Libra" class, Libra AKA 12, and Oberon, AKA 14, were disposed of in 1961, and Titanio, AKA 13, was stricken from the Navy List and transferred to the Maritime Administration Reserve Fleet in 1961.

Of the "Bellatrix" class, Bellatrix, AKA 3, was dispo. of in 1961, but re-acquired and transferred to Peru in 1963; and Electra, AKA 4, was stricken from the Navy List and transferred to the Maritime Administration Reserve Fleet in 1961.

Attack Cargo Ships—continued



SKAGIT 1960, United States Navy, Official

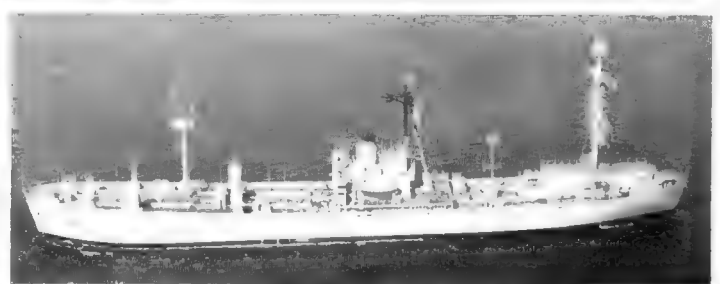
6 "Rankin" Class

AKA 103 RANKIN (22 Dec. 1944)	AKA 106 UNION (23 Nov. 1944)
104 SEMINOLE (28 Dec. 1944)	107 VERMILION (12 Dec. 1944)
105 SKAGIT (28 Nov. 1944)	108 WASHBURN (12 Dec. 1944)

Displacement: 6,456 tons light (14,160 tons full load)
Dimensions: 459½ (o.a.) x 63 x 26½ feet
Guns: 8—40 mm. AA., 10—20 mm. AA.
Machinery: Geared turbines 1 shaft. S.H.P.: 6,000=16.5 kts.
Complement: 247

General
C2-S-AJ3 type. Laid down in 1944 and commissioned in 1945. Combat load 4,500 tons. The 5-inch gun is scheduled to be replaced by a twin 3-inch mounting.

TECHNICAL RESEARCH SHIPS



OXFORD 1962, United States Navy, Official

3 "Liberty" Conversion

AGTR 1 (ex-AG 159) **OXFORD** (ex-Samuel R. Aitken, MCE 3127;
AGTR 2 (ex-AG 165) **GEORGETOWN** (ex-S.S. Robert W. Hart)
AGTR 3 (ex-AG 166) **JAMESTOWN** (ex-S.S. J. Howland Gardner)
Measurement: 7,330 tons
Dimensions: 441½ (o.a.) x 57 x 23 feet
Triple expansion. I.H.P.: 2,500=12.5 kts.
Complement: 275 (18 officers, 257 men)

General
Modified "Liberty" ships. Oxford began conversion in Sep. 1960 by New York Naval Shipyard and commissioned on 8 July 1961. For research and experiments in communications and electromagnetic radiations. Unarmed. Georgetown and Jamestown, built by New England Shipbuilding Corp. in 1945, were converted by Newport News Shipbuilding & Dry Dock Co. and commissioned on 9 Nov. 1963 and 13 Dec. 1963, respectively. All reclassified as AGTR on 1 Apr. 1964.

2 "Victory" Conversion

AGTR 4 (ex-AG 167) **BELMONT** (ex-Iran Victory)
AGTR 5 (ex-AG 168) **LIBERTY** (ex-Simmons Victory)

General
Modified "Victory" ships. Conversion completed by Willamette Iron & Steel, Portland, Ore., in Sep. and Dec., commissioned 2 Nov. and 30 Dec. 1964, respectively. Mobile bases for research in communications and electromagnetic radiation.

SURVEYING SHIPS (AGS)

1 New Construction. Fleet Type

AGS 29
Displacement: 4,200 tons full load
Dimensions: 380 (o.a.) x 54 x 16 (max.) feet
Guns: 4—50 cal. M.G.
Machinery: Diesel-electric. 1 shaft H.P.: 3,000=15 kts.
Radius: 15,000 miles at 12 kts.
Complement: 272 (19 officers, 245 men, 8 civilian technicians)

General
Designed for complete military hydrographic and oceanographic surveys, as tender for coastal survey craft, helicopters, and Marine Corps survey teams, and for compiling and printing finished charts on the spot to meet Fleet and landing force requirements. In the Fiscal Year 1965 Programme. Equipped with helicopter platform. Capable of self-support on operations for extended periods.

2 New Construction Medium Type

AGS 26 SILAS BENT	1,935 tons standard (2,558 tons full load)	AGS 27 KANE
Displacement:	2,700 tons gross	
Measurement:	261½ (pp.), 285 (o.a.) x 48 x 15 feet	
Dimensions:	Diesel-electric. 1 shaft H.P.: 3,000=15 kts.	
Machinery:	12,000 miles at 12 kts.	
Radius:	79 (12 officers, 29 men, 38 scientists)	
Complement:		

General
Silas Bent, is the first of this type of survey ship built for the Navy. Designed and equipped for hydrographic surveys and to collect special oceanographic, acoustic and meteorological data. Planned as a follow ship to the AGOR type, but the oceanographic research spaces are adapted for hydrographic surveys. Built by the American Shipbuilding Co. Laid down on 2 Mar. 1964, launched 16 May 1964 for completion in July 1965. AGS 27 was laid down on 19 Dec. 1964 for launch in Sep. 1965 and completion in Apr. 1966 by Christy Corp. Single screw propulsion with bridge control. 350 H.P. bow propulsion unit to maintain heading when dead in water. Auxiliary propulsion for quick operation while maintaining steerage-way. Another AGS is in the 1966 Programme.

Surveying Ships—continued



CHARLES H. DAVIS

1964, United States Navy, Official

9+2 Oceanographic Research Type

AGOR 3 ROBERT D. CONRAD
AGOR 4 JAMES S. GILLISS
AGOR 5 CHARLES H. DAVIS
AGOR 6 SANDS

AGOR 7 LYNCH
AGOR 9 THOMAS G. THOMPSON
AGOR 10 THOMAS WASHINGTON
AGOR 12
AGOR 13

Displacement: 1,200 tons standard (1,380 tons full load)
Dimensions: 191½ (w.l.), 209 (o.a.) × 40 × 15 feet
Machinery: Diesel-electric, 1 shaft, H.P.: 1,000 = 13½ kts.
Complement: 8 officers, 16 men, 15 scientists (MSTS civilian crew)

General

Robert D. Conrad was built by Gibbs Corporation, Jacksonville, Florida. Laid down on 19 Jan. 1961 and launched on 26 May 1962. James M. Gilliss and Charles H. Davis were built by Christy Corp., Sturgeon Bay, Wisconsin. Laid down on 31 May and 15 June 1961 and launched on 19 May and 30 June 1962, respectively. Sands and Lynch built by Marietta Mfg. Co., Point Pleasant, W. Va., laid down on 23 Aug. 1962 and 7 Sep. 1962, respectively, and launched on 14 Sep. 1963 and 17 Mar. 1964. Thomas G. Thompson and Thomas Washington were built by Marinette Marine Corporation, Marinette, Wisconsin. Laid down on 12 Sep. 1963 and launched on 18 July 1964 and 1 Aug. 1964 respectively. AGOR 12 and 13 in the Fiscal Year 1965 programme, and two more in the 1966 programme. All equipped to study sound transmission, effect of the ocean on scientific and naval instruments, and obtain information on installation and improving ocean surveillance systems. Designed for high manoeuvrability at low speeds. Fitted with laboratories and meteorological rocket launching gear. Bow propeller. 175 H.P.: bow propulsion unit. 1,300 tons gross measurement. Robert D. Conrad is on loan to Lamont Laboratory, Thomas G. Thompson to University of Washington, Thomas Washington to Scripps Inst. of Oceanography.

2 New Construction. Small Type

AGS 25 JOHN G. KELLAR

AGS 31

Displacement: 1,200 tons standard (1,400 tons full load)
Dimensions: 209 (o.a.) × 40 × 15 feet
Machinery: Diesel-electric, 1 shaft, S.H.P.: 1,000 = 15 kts.
Complement: 41 (9 officers, 17 men, 15 scientists)

General

John G. Kellar, prototype authorised in 1962, is the first new construction survey ship built for the U.S. Navy. Built by Marietta Mfg. Co., Point Pleasant, W. Va. Civilian manned and operated under the technical control of the Hydrographer. Unarmed. Similar to the new AGORS. Laid down on 20 Nov. 1962 and launched on 30 July 1964 for completion in Sep. 1965. AGS 31 was authorised in the Fiscal Year 1965 programme. Single screw propulsion with bridge control. Rotatable bow propulsion unit to maintain heading of ship when dead in water.



MICHELSON

1954, United States Navy, Official

3 Ballistic Missile Support Type

T-AGS

21 BOWDITCH (ex-S.S. South Bend Victory)

22 DUTTON (ex-S.S. Tuskegee Victory)

23 MICHELSON (ex-S.S. Joliet Victory)

General

"Victory" hulls converted in support of the Fleet Ballistic Missile Programme. Dutton and Michelson at Philadelphia Naval Shipyard 8 Nov. 1957 to 16 Nov. 1958 and 1 Mar. 1958 to 31 Dec. 1958, respectively, and Bowditch at Charleston Naval Shipyard 10 Oct. 1957 to 30 Sep. 1958. Operated by MSTS with civilian crew. Designed to chart the ocean floor and to record magnetic fields and gravity to enable vessels to establish locations within a few yards of their actual positions. A photograph of Dutton appears in the 1960-61 to 1963-64 editions.



JOSIAH WILLARD GIBBS

Added 1962, Giorgio Arra

1 Oceanographic Research (Converted) Type

JOSIAH WILLARD GIBBS, T-AGOR 1 (ex-San Carlos, AVP 51)

Displacement: 1,750 tons standard (2,800 tons full load)
Dimensions: 300 (w.l.), 310½ (o.a.) × 41½ × 13½ feet
Machinery: 2 Fairbanks-Morse diesels. 2 shafts. S.H.P.: 6,080 = 18 kts.
Complement: 76 (48 crew, 28 scientists)

General

Former seaplane tender. Built by Lake Washington Shipyard, Houghton, Wash. Laid down on 7 Sep. 1942, launched on 20 Dec. 1942, and completed on 21 Mar. 1944. Assigned to Columbia University Hudson Laboratories by ONR in 1959, and operated by MSTS. Equipped with a 3rd auxiliary propeller for speeds of 4 kts. and less.

Surveying Ships—continued



MAURY

United States Navy, Official

2 Ex-Attack Cargo Ship Type

AGS 16 MAURY (ex-Renate, AK 36)

AGS 15 TANNER (ex-Pamino, AK 34)

Displacement: 4,203 tons standard (6,500 tons full load)
Dimensions: 400 (w.l.), 426 (o.a.) × 58 × 17 feet
Guns: 8—40 mm. AA.
Machinery: Westinghouse turbo-electric, 2 shafts. B.H.P.: 6,000 = 17 kts.
Boilers: 2 Wickes

General

Former Attack Cargo Ships. S4-SE2-B1 type. Both built by Walsh-Kaiser Co. Inc., Providence, R.I. Launched on 31 Jan. and 5 Jan. 1945, respectively. Converted in 1946. Helicopter flight deck on stern.



SAN PABLO

1965, United States Navy, Official

2 Ex-Seaplane Tender Type

AGS 50 REHOBOTH (ex-AVP 50)

AGS 30 SAN PABLO (ex-AVP 30)

Displacement: 1,766 tons standard (2,800 tons full load)
Dimensions: 300 (w.l.), 310½ (o.a.) × 41½ × 13½ feet
Machinery: Fairbanks-Morse diesels. 2 shafts. B.H.P.: 6,080 = 18 kts.
Complement: 169 (12 officers, 157 men)

General

Former Seaplane Tenders. Reclassified as AGS and assigned to duties as deep-sea hydrographic-surveying ships under the technical control of the Hydrographer. Built by Lake Washington Shipyard and Associated Shipbuilding, respectively. Launched on 8 Nov. and 31 Mar. 1942. Guns were removed in 1957.



SHELDRAKE

1965, United States Navy, Official

2 Ex-Fleet Minesweeper Type

AGS 19 SHELDRAKE (ex-AM 62)

AGS 28 TOWHEE (ex-AM 388)

Displacement: 890 tons standard (1,250 tons full load)
Dimensions: 215 (w.l.), 221½ (o.a.) × 32½ × 10½ feet
Machinery: Diesel-electric, 2 shafts. B.H.P.: 3,118-3,532 = 18 kts.
Complement: 100

General

Former Fleet Minesweepers. Built by Gen. Eng. & D.D. Co., Alameda, Calif. and American S.B. Co., Cleveland, Ohio, respectively. Launched on 12 Feb. 1942 and 6 Jan. 1945. Reclassified as surveying vessels. Sheldrake early in 1952 and Towhee on 1 Apr. 1964. Sister ship Pursuit AGS 17 (ex-AM 108) disposed of in 1960. Prevail, AGS 20 (ex-AM 107) on 10 Jan. 1964 and Requisite, AGS 18 (ex-AM 109) on 1 Apr. 1964.

1 Coastal Type

LITTLEHALES AGSC 15 (ex-YF 854)

General

Former covered lighter launched in Aug. 1945, converted and reclassified as a coastal survey ship on 14 Feb. 1959 and renamed. Standard 300 tons (650 tons full load), 133 (o.a.) × 31 × 9 feet, diesel reduction, 2 shafts, S.H.P.: 1,000, crew 11.

1 Ex-Tug Type

SERRANO, AGS 24 (ex-ATF 112)

General

Former fleet ocean tug of the "Apache" class, launched in July 1943, reclassified from ATF to AGS on 15 June 1960. Standard 1,240 tons (1,640 tons full load), 205 (o.a.) × 39 × 17 feet, diesel-electric, 1 shaft, S.H.P.: 3,000, crew 116.

REPAIR SHIPS (AR)



KLONDIKE,

1962, United States Navy, Official

1 "Arcadia" Class

AR 22 KLONDIKE ex-AD 22 (12 Aug. 1944)

Displacement: 8,165 tons standard (16,635 tons full load)
 Dimensions: 465 (w.l.), 492 (o.a.) \times 69 $\frac{1}{2}$ \times 27 $\frac{1}{2}$ feet
 Guns: 1—5 inch, 4—3 inch, 4—40 mm. AA.
 Machinery: Geared turbines. S.H.P.: 8,100=18.4 kts.
 Boilers: 2 Babcock & Wilcox
 Complement: Accommodation for 826

General

Sister ship of "Arcadia" class destroyer tenders (see previous page), reclassified as a repair ship on 20 Feb. 1960 and designation changed from AD 22 to AR 22.



CADMUS

1956, United States Navy, Official

2 "Amphion" Class

AR 13 AMPHION (15 May 1945)

AR 14 CADMUS (5 Aug. 1945)

Displacement: 7,826 tons standard (16,900 tons full load)
 Dimensions: 456 (w.l.), 492 (o.a.) \times 70 \times 27 $\frac{1}{2}$ feet
 Guns: 2—5 inch, 8—40 mm. AA.
 Machinery: Westinghouse turbines. S.H.P.: 8,500=17 kts.
 Boilers: 2 Foster-Wheeler
 Complement: Accommodation for 921

General

Built by Tampa Shipbuilding Co. Launch dates above. C 3 cargo type. Deucalion and Mars, of this type were cancelled.

"EC 2" Type

ARG 4 TUTUILA (ex-Arthur P. Gorman, 12 Sep. 1943)

Displacement: 5,766 tons standard (14,350 tons full load)
 Dimensions: 416 (w.l.), 441 $\frac{1}{2}$ (o.a.) \times 57 \times 23 (mean) feet
 Machinery: Triple expansion. I.H.P.: 2,500=12.5 kts.
 Boilers: 2 Babcock & Wilcox

General

Liberty ship. Built by Bethlehem Steel Co., Fairfield Yard, Baltimore, Md. Internal Combustion Engine Repair Ship, Hooper Island, ARG 17 was decommissioned in July 1959 and disposed of. Kermit Roosevelt was stricken on 1 Jan. 1960, and Luzon, ARG 2, disposed of in 1960. Xanthus was stricken in 1962. Chodre, ARV 1, Dionysus, AR 21, Culebra Island, ARG 7, Laertes, AR 20, Mindanao, ARG 3, and Samar, ARG 11, were stricken on 1 Sep. 1961. Cebu, ARG 6, Mona Island, ARG 9, and Webster, ARV 2, were stricken and transferred to the Maritime Administration in Sep. 1962. Oahn, ARG 5, and Palawan, ARG 10 were stricken in July 1963 and transferred to the Maritime Administration reserve fleet.



AJAX

United States Navy, Official

4 "Vulcan" Class

AR 6 AJAX (22 Aug. 1942)

AR 7 HECTOR (11 Nov. 1942)

AR 8 JASON (3 Apr. 1943)

AR 5 VULCAN (14 Dec. 1940)

Displacement: 9,140 tons standard (16,200 tons full load)
 Dimensions: 520 (w.l.), 529 $\frac{1}{2}$ (o.a.) \times 73 $\frac{1}{2}$ \times 23 $\frac{1}{2}$ feet
 Guns: 4—5 inch, 8—40 mm. AA.
 Machinery: Geared turbines. 2 shafts. S.H.P.: 11,000=19.2 kts.
 Boilers: 4 Babcock & Wilcox 3-drum
 Complement: 1,297 (war)

General

Vulcan was built by New York S.B. Corp. under the 1959 Program and the other three by Los Angeles S.B. & D.D. Corp., under the 1940 Program. All carry a most elaborate equipment of machine tools to undertake repairs of every description. Jason, formerly ARH 1, and rated as heavy hull repair ship, was reclassified AR 8 on 9 Sep. 1957.

Repair Ships—continued



MARKAB (as repair ship)

1961, United States Navy, Official

AR 23 MARKAB (ex-AD 21, ex-AK 31, ex-Mormacpenn)

Displacement: 8,560 tons standard (14,800 tons full load)
 Dimensions: 465 (pp.), 492 $\frac{1}{2}$ (o.a.) \times 69 $\frac{1}{2}$ \times 24 $\frac{1}{2}$ feet
 Guns: 1—5 inch, 4—3 inch, 4—40 mm. AA.
 Machinery: Geared turbines. S.H.P.: 8,500=18.4 kts.
 Boilers: 2 Foster-Wheeler

General

Built by Ingalls S.B. Co., Pascagoula, Mass. Launched on 21 Dec. 1940. Former destroyer tender, reclassified as a repair ship on 15 Apr. 1960 and designation changed from AD 21 to AR 23.



DELTA

1961, United States Navy, Official

AR 12 BRIAREUS (ex-Hawaiian Planter)

AR 9 DELTA (ex-AK 29, ex-Hawaiian Packer)

Displacement: 8,975 tons standard (14,500 tons full load)
 Dimensions: 465 $\frac{1}{2}$ (pp.), 490 $\frac{1}{2}$ (o.a.) \times 69 $\frac{1}{2}$ \times 24 $\frac{1}{2}$ feet
 Guns: 1—5 inch, 4—3 inch, 4—40 mm. AA.
 Machinery: Geared turbines. S.H.P.: 8,500=17 kts.
 Boilers: 2 Foster-Wheeler and 2 Babcock & Wilcox, respectively

General

Both launched in 1941. C-3 type. Briareus is in reserve. Delta was recommissioned on 31 Oct. 1959.



MEGARA

1960, United States Navy, Official

19 Ex-LST Type

ACHELOUS (ex-LST 10)	ARL 1	INDRA (ex-LST 1147)	ARL 37
AMYCUS (ex-LST 489)	ARL 2	KRISHNA (ex-LST 1149)	ARL 38
ASKARI (ex-LST 1131)	ARL 30	MEGARA (ex-LST 1095)	ARVA 6
ATLAS (ex-LST 231)	ARL 7	MIDAS (ex-LST 524)	ARB 5
BELLEROPHON (ex-LST 1132)	ARL 31	PANDEMUS (ex-LST 650)	ARL 18
CHLORIS (ex-LST 1094)	ARVE 4	SARPEDON (ex-LST 956)	ARB 7
EGERIA (ex-LST 136)	ARL 8	SATYR (ex-LST 852)	ARL 23
ENDYMION (ex-LST 513)	ARL 9	SPHINX (ex-LST 963)	ARL 24
FABIUS (ex-LST 1093)	ARVA 5	TELAMON (ex-LST 957)	ARB 8
		ZEUS (ex-LST 132)	ARB 4

Displacement: 1,625 tons light, 3,960 tons trials (4,100 tons full load)
 Dimensions: 316 (w.l.), 328 (o.a.) \times 50 \times 11 feet
 Guns: 8—40 mm. AA.
 Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,800=11.6 kts

General

All launched in 1942-45. Four types: rated as Repair Ships for Battle Damage (ARB) for Landing Craft (ARL), Aircraft Repair Ships for Aircraft Engines (ARVE), and Airframes (ARVA). Complement 251 to 286.

Transfers

Agenor ARL 3 (ex-LST 490) was ceded to France on 2 Mar. 1951. Patroclus, ARL 19 (ex-LST 955), transferred to Turkey in 1952. Minotaur, ARL 15 (ex-LST 645), loaned to Korea on 3 Oct. 1955. Romulus, ARL 22, transferred to the Philippines in 1961. Diomedes, ARB 11, and Ulysses, ARB 9, to West Germany in June 1961. Gordius, ARL 36, to Iran in Sep. 1961. Hellas, ARB 12, loaned to Brazil in Jan. 1962. Quirinus, ARL 39 (ex-LST 1151) to Venezuela in June 1962. Aventinus, ARVE 3 (ex-LST 1092) transferred to Chile in 1963.

Disposals

Demeter, ARB 10 (ex-LST 1121), was stricken from the list on 1 Mar. 1959. Adonis, ARL 4, Daedalus, ARL 35, Minos, ARL 14, Pentheus, ARL 20, and Proserpine, ARL 21, on 1 Jan. 1960. Crean, ARL 11, Menelaus, ARL 13, Myrmidon, ARL 16, and Numitar, ARL 17, at the end of 1960. Stentor, ARL 26 and Typhoon, ARL 28, in 1960. Amphitrite, ARL 29, Aristaeus, ARB 1, Chimaera, ARL 33, Caronis, ARL 10, Oceanus, ARB 2, Phoon, ARB 3, and Poseidon, ARL 12, on 1 July, 1961.

MEDIUM LANDING SHIPS (ROCKET)



BIG BLACK RIVER 1963, United States Navy, Official



TARGETEER (as Aircraft Control Craft) 1961, United States Navy, Official



ST. FRANCIS RIVER 1960, United States Navy, Official

12 LSMR and 1 YV. 401-412, 501-536 Series

LSMR

- 401 BIG BLACK RIVER
- 405 BROADKILL RIVER
- 409 CLARION RIVER
- 412 DES PLAINES RIVER
- 501 ELK RIVER
- YV 3 TARGETEER (ex-Gunnison River, LSMR 508)
- 512 LAMOILLE RIVER

LSMR

- 513 LARAMIE RIVER
- 515 OWYHEE RIVER
- 522 RED RIVER
- 525 ST. FRANCIS RIVER
- 531 SMOKY HILL RIVER
- 536 WHITE RIVER

Displacement: 944 tons attack (1,084 tons full load)
Dimensions: LSMR 410-412: 206½ (o.a.) 204½ (w.l.)×34½×7½ feet
LSMR 501-536: 203½ (o.a.) 197½ (w.l.)×34½×7½ feet
Guns: 1—5 inch, 4—4-2 inch mortars, 4—40 mm. AA, 8—20 mm. AA., 10—5 inch rocket projectors
Machinery: G.M., diesel, 2 shafts. B.H.P.: 2,800=12.6 kts.
Complement: 138 (5 officers, 133 men)

General

Modified LSMs. The ten automatic rocket launchers are continuously fed, each firing thirty spin-stabilised 5-inch rockets per minute, a barrage of 300 per clip. All LSMRs were named on 1 Oct. 1955. All out of commission, in reserve, except Clarion River, LSMR 409, St. Francis River, LSMR 525, and White River, LSMR 536, all recommissioned in 1965

Reclassification

Gunnison River, LSMR 508, was reclassified as a drone Aircraft Catapult Control Craft, YV 3, on 9 May 1960, to replace YV 1. She was renamed Targeteer on 26 June 1960. Decommissioned in July 1965.

Photographs

A port bow view of Owhyee River appears in the 1957-58 to 1962-63 editions, a starboard bow oblique aerial view of Blackstone River in the 1957-58 edition, a starboard broadside surface view of St. Joseph River in the 1953-54 to 1959-60 editions, a port broadside surface view of LSM 297 in the 1957-58 and 1958-59 editions and a port bow oblique aerial view of LSM 458 in the 1952-53 to 1957-58 editions.

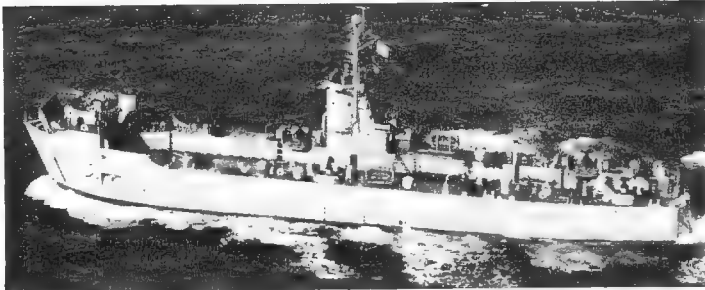
Transfers

Smyrna River, LSMP 532, and Thames River, LSMR 534, were transferred to West Germany on 5 Sep. 1958, and St. Joseph River, LSMR 527, to Korea in 1960.

Disposals

Big Horn River, LSMR 402, Blackstone River, LSMR 403, Black Warrior River, LSMR 404, Charlton River, LSMR 407, Charles River, LSMR 408, Escalante River, LSMR 502, Flambeau River, LSMR 503, Grand River, LSMR 505, Green River, LSMR 506, Greenbrier River, LSMR 507, Holston River, LSMR 509, Pearl River, LSMR 516, Pitt River, LSMR 518, Powder River, LSMR 519, Rainy River, LSMR 521, St. Croix River, LSMR 524, St. John's River, LSMR 526, St. Mary's river, LSMR 528, Salmon Falls River, LSMR 530, Snake River, LSMR 533, and Trinity River, LSMR 535 were stricken from the Navy List in 1959, and Canadian River, LSMR 406, Clark Fork River, LSMR 410, Cumberland River, LSMR 411, Gila River, LSMR 504, James River, LSMR 510, John Day River, LSMR 511, Maurice River, LSMR 514, Pee Dee River, LSMR 517, Raccoon River, LSMR 520, Republican River, LSMR 523, and St. Regis River, LSMR 529, on 1 Feb. 1960.

MEDIUM LANDING SHIPS (LSM)



KODIAK 1960, United States Navy, Official

2 LSM I-558 Series

LSM 335 (USNS)

LSM 161 (ex-Kodiak)

Displacement: 743 tons beaching (1,095 tons full load)
Dimensions: 196½ (w.l.), 204½ (o.a.)×34½×8½ feet
Guns: 2—40 mm. AA. (LSM 335 unarmed)
Machinery: Diesel direct drive, 2 shafts. B.H.P.: 2,800=12.5 kts.
Complement: 59

General

Only two medium landing ships remain in service. This class could carry 5 medium tanks. Some were fitted with Kirsten cycloidal propellers, enabling the ships to turn 360 degrees and remain in the same position. LSM 335 is assigned to MSTs Kodiak, LSM 161, was decommissioned to reserve on 11 Dec. 1964.

Nomenclature

LSM 161, 175, 373 and 540 were named Kodiak, Oceanside, Lakeland and Raritan, respectively, on 14 Oct. 1959, see Transfers and Disposals. The name Kodiak, however, was officially cancelled (effective on 22 Mar. 1965).

Reclassification

LSM 445 and LSM 446 were reclassified as Drone Aircraft Catapult Control Vessels and redesignated YV 1 and YV 2 on 30 Aug. 1954 and renamed Catapult and Launcher, respectively, on 1 June 1957. Catapult decommissioned in 1960 and was discarded with Launcher. See Disposals below.

Experimental

LSM 398 was reclassified as EAG 398 in Dec. 1956 and named Hunting on 13 July 1957 (she has since been stricken). LSM 444 was transferred to the Atomic Energy Commission on a loan basis in 1957 and subsequently named Aloto. (She was returned to the U.S. Navy in 1960 and loaned to Chile).

Photographs

A port bow oblique aerial view of Catapult, as converted and showing radar masts appears in the 1960-61 edition, a port quarter oblique view of Lakeland LSM 373 in the 1959-60 edition, a port broadside surface view of LSM 297 in the 1957-58 and 1958-59 editions, and a port bow oblique aerial view of LSM 456 in the 1952-53 to 1957-58 editions:

Transfers

LSM 500 was transferred to Denmark on 15 May 1953. LSMs 17, 19, 30, 54, 57, 84, 96, 268, 316, 419, 462 and 546 to Korea in 1956, LSM 491, LSM 537, LSM 553 and LSM 558 to West Germany on 15 Aug. 1959 (first two) and 5 Sep. 1958 (other two), LSM 472 and LSM 474 to Taiwan China at Seattle on 3 Feb. 1959, LSM 539 and LSM 555 to Ecuador in 1959, LSM 444, Aloto to Chile in 1960, LSM 236 to the Philippines on 15 Sep. 1960, LSM 483 to the Dominican Republic in 1960, Oceanside, LSM 175 and LSM 313 to Viet Nam in 1961, LSM 320 and LSM 463 to the Philippines on 17 Mar. 1961, LSM 469 to Thailand in 1962, LSM 362 to Taiwan China in May 1962, LSM 276 to Viet Nam in Mar. 1963.

Disposals

All LSMs were stricken from the Navy List in 1957 except 13 LSMs and the two YVs but LSM 455, 491, 533, 537, 541, 557 and 558 were stricken in 1958-59. Lakeland, LSM 373, and Raritan, LSM 540, in 1960, Catapult, YV 1, ex-LSM 445, and Launcher, YV 2, ex-LSM 446, in 1960, Hunting, EAG 398 (ex-LSM 398) on 1 Nov. 1962.

SALVAGE LIFTING VESSELS (ARSD)



WINDLASS Added 1957, Ted Stone

4 Ex-LSM Type

- GYPSY (ex-LSM 549)
- MENDER (ex-LSM 550)

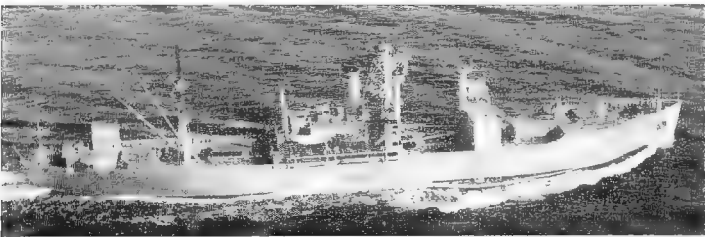
- SALVAGER (ex-LSM 551)
- WINDLASS (ex-LSM 552)

Displacement: 740 tons standard (1,095 tons full load)
Dimensions: 224½×34×7 feet
Machinery: Diesel, 2 shafts. B.H.P.: 2,800=13 kts.

General

Numbered ARSD 1-4. Used as diving tenders. All launched on 7 Dec. 1945. Gypsy and Mender are out of commission, in reserve.

MISSILE RANGE SHIPS



RANGE TRACKER 1962, United States Navy, Official
7 Pacific Missile Range Ships. "Victory" Type

- T-AGM 1 RANGE TRACKER (ex-T-AG 160) (ex-S.S. Skidmore Victory, MCV 685)
- T-AGM 3 LONG VIEW (ex-Haiti Victory, T-AK 238)
- T-AGM 4 RICHFIELD (ex-Private Joe E. Mann, T-AK 253, ex-Owensboro Victory)
- T-AGM 5 SUNNYVALE (ex-Dalton Victory, T-AK 256)
- T-AGM 6 WATERTOWN (ex-S.S. Niantic Victory)
- T-AGM 7 HUNTSVILLE (ex-S.S. Knox Victory)
- T-AGM 8 WHEELING (ex-Seton Hall Victory)

Displacement: 7,190 tons (Navy light), 10,680 tons full load
Dimensions: 455 (o.a.)x62x24 (max.) feet
Machinery: Geared turbines, S.H.P.: 8,500=18 kts
Complement: 90

General
T-AGM 1:—The 9,000-ton conversion of Skidmore Victory to a missile range instrumentation ship, AG, was authorised in the Fiscal Year 1960 Conversion Program. She was converted by Ingalls Shipbuilding Corporation, Pascagoula, Mississippi, and assigned to the Pacific Missile Range as Range Tracker. Fitted with telemetry, navigation, timing, aerology, radio command and surveillance equipment. MSTs civil service crew of 17 officers 42 men, and 30 civilian electronic specialists.

T-AGM 3 and T-AGM 5:—Dalton Victory and Haiti Victory (both USNS) were specially equipped to recover satellite capsules or missiles in the Pacific Missile Range, and are fitted with a helicopter deck and hangar for two helicopters. Also fitted with radar plotting equipment, weather sounding devices, and telemetry receivers. The two ships were reclassified and renamed in 1960. Based at Honolulu, Hawaii.

T-AGM 4:—Private Joe E. Mann was fitted out as a range instrumentation and telemetry ship for the Pacific Missile Range in Oct. 1958. Based at Pt. Mugu, California, as a tracking and recovery ship. Reclassified and renamed in 1960.

T-AGM 6 and T-AGM 7:—Acquired, converted, reclassified and renamed in 1960-61.

T-AGM 8:—(VC-2 conversion) converted under the Fiscal Year 1962 program at Boland Machinery & Manufacturing Co., New Orleans, Louisiana. Placed in service on 28 May 1964. Painted white. Complement: 57 crew, 15 Navy personnel, 34 technicians.

I Pacific Missile Range Telemetry Ship. Small Type

- T-AGM 2 RANGE RECOVERER (ex-T-AG 161, ex-FS 278)

General
T-AGM 2:—Acquired from the Army in 1960. Instrumentation and telemetry ship for the Pacific Missile Range. MSTs Civil Service crew. Reclassified from T-AG 161 to T-AGM 2 in 1960. AKL type. Displacement 550 tons, length 176 feet, crew 21.

10 Atlantic Missile Range (ex-USAF) Ships

- T-AGM 9 GENERAL H. H. ARNOLD (ex-U.S.N.S. General R. E. Collan, T-AP 139)
- T-AGM 10 GENERAL HOYT S. VANDENBERG (ex-U.S.N.S. General Harry Taylor, T-AP 145)

General
Conversions of C4-S-A3 hulls for monitoring missile and satellite tests. They have elaborate electronic installations. The ship control spaces have been shifted aft and the forward superstructure has been removed to accommodate the numerous antennae. Among these is a telemetering antenna 60 feet in diameter, a command control antenna and a high powered precise tracking radar antenna specially located in order to minimise danger from the radiation it generates: These ships were converted in 1962-63 by the Bethlehem Steel Co., Brooklyn and Hoboken Yards with Sperry Rand Corp. as the prime contractor for the conversions. Full load displacement: 16,600 tons, length 523 feet, speed 17 knots. General Hoyt S. Vandenberg was christened at Baltimore, Ind., on 18 July 1963 as a U.S. Air Force Ship, but both ships and the eight following ships, all designated Atlantic Missile Range Ships, were transferred from the Air Force to the Navy (MSTS) in 1964 and designated USNS, with civilian crews.

- T-AGM 11 TWIN FALLS (ex-Twin Falls Victory)

General
VC2-S-AP3 type. Same type as Pacific Missile Range Ships T-AGM 1, 3, 4, 5, 6, 7 and 8.

- T-AGM 12 AMERICAN MARINER

General
A Liberty ship EC2-S-C1 type. Converted to a training ship for merchant seamen during the Second World War, and subsequently acquired by the Army and then the Air Force. Underwent a \$2,000,000 refit by Todd Shipyard Corp., Brooklyn, N.Y. in 1961-62 and has one of the most complete instrumentation facilities of any vessel afloat. Since Feb. 1959 this ship has been in operation observing missiles from Cape Kennedy (formerly Cape Canaveral) which fall into the South Atlantic impact area. The ship is equipped to make observations with radar, infra-red tracker, and optical instruments. By using their complete array of tracking devices the observation crew sights in on missile parts as they fall from the upper atmosphere and records physical characteristics of the re-entry. The air conditioned ship is fully equipped with metal and wood-working shops and repair facilities for the electronic equipment. Since each missile is given detailed photographic coverage there is also a complete photographic laboratory.

- T-AGM 13 SWORD KNOT
- T-AGM 14 ROSE KNOT
- T-AGM 15 COASTAL SENTRY
- T-AGM 16 COASTAL CRUSADER
- T-AGM 17 TIMBER HITCH
- T-AGM 18 SAMPAN HITCH

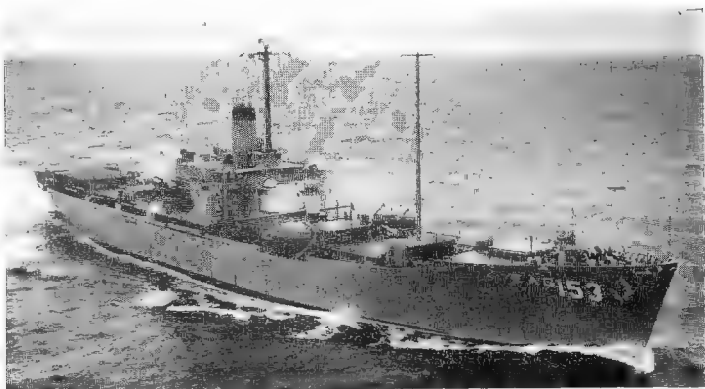
General
All former merchant ships, CI-M-AVI type, diesel powered, of the same type as the Coast Guard's Kukui and USNS T-AG 169, 170, 171 and T-APC 116.

With the above 10 ships and the 7 Navy ships assigned to the Pacific Missile Range, a total of 17 space tracking and data acquisition ships exist. Eventually there will be 12 ships equipped for telemetry and 8 ships for telemetry data acquisition only.

- T-AGM 19 MUSSLE SHOALS (ex-Mission San Fernando)
- T-AGM 20 JOHNSTOWN (ex-Mission de Palo)
- T-AGM 21 FLAGSTAFF (ex-Mission San Juan)

General
Former T-2 fleet oilers. Reacquired from the Maritime Administration reserve fleet in Sep. 1964 and renamed on 8 Apr. 1965. Converted by General Dynamics Corp., Quincy, Mass. for completion in Dec. 1965, Mar. 1966 and June 1966, respectively, for Project Apollo use by 1968. Lengthened with new mid-sections.

MISSILE EXPERIMENTAL SHIPS



COMPASS ISLAND 1960, United States Navy, Official

I Experimental Navigational Ship

- EAG 153 COMPASS ISLAND (ex-YAG 56, ex-S.S. Garden Mariner)

Measurement: 17,600 tons
Dimensions: 529½x76½x29 feet
Machinery: G.E. geared turbines. S.H.P.: 19,250=20 kts.

General
Built by New York Shipbuilding Corp., Camden, New Jersey. Converted by New York Naval Shipyard, Brooklyn, and commissioned on 3 Dec. 1956 for the development of the Fleet Ballistic Missile. Her mission is to assist in the development and evaluation of a navigation system independent of shore-based aids. (See Navigation notes on S.I.N.S., Ship Inertial Navigational System, in the 1957-58 to 1963-64 editions). The ship was acquired by the Navy from the Maritime Administration. She was modernized to provide excellent living spaces for her crew and accommodation for a large number of scientists to work and live aboard.

Stabilization
One of the most comfortable riding ships in the Navy. She has the best automatic steering available, and has activated fins for roll-stabilization. This system was developed by Sperry Gyroscope Co. When her sister ships roll 15 degrees, Compass Island, in the same seaway rolls about 1½ degrees, a 90 per cent reduction in roll.

Photographs
A large starboard broadside aerial view appears in the 1958-59 and 1959-60 editions, and a large starboard quarter oblique aerial view in the 1957-58 edition.



OBSERVATION ISLAND 1960, United States Navy, Official

I Experimental Firing Ship

- EAG 154 OBSERVATION ISLAND (ex-YAG 57, ex-S.S. Empire State Mariner)

Displacement: 15,000 tons
Dimensions: 529½x76½x29 feet
Machinery: G.E. geared turbines. S.H.P.: 19,250=20 kts.
Complement: 350

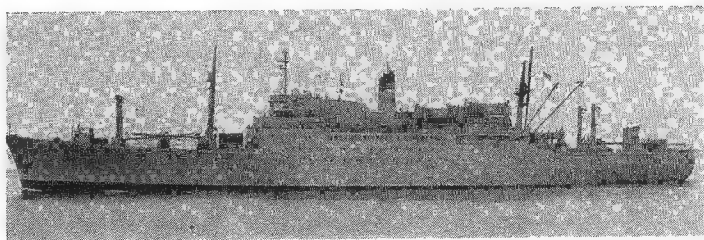
General
Built by New York Shipbuilding Corp., Camden, New Jersey. Converted by Norfolk Naval Shipyard, Portsmouth, Virginia. Commissioned on 5 Dec. 1958. Experimental vessel for firing "Polaris" (intermediate range inter-continental ballistic missile) in the scheduled programme of test ships. Conversion cost \$20,000,000.

Missile Testing
The ship is fitted for complete missile testing, fuelling, servicing and firing, with equipment to evaluate Polaris missiles for launching from surface ships. A new launching tube was installed at Norfolk Naval Shipyard in 1960 to replace one of two tubes formerly installed. The new tube is fitted at a fixed angle. A tiltable tube remains but a vertically fixed tube has been replaced. Both of these were submarine missile launching experiments. Eight to ten different submarine designs and several surface ship designs are being developed, for carrying "Polaris". She carries two "Polaris" missile launchers. She fired the first ship launched Polaris missile, at sea on 27 Aug. 1959. The 28-foot test version of the Polaris was forced 70 feet above the deck by compressed air after which its first stage engine ignited. The ship is installed with complex navigational equipment designed to pinpoint long range surface-to-surface missile firings. She was fitted with the second "Polaris" missile launching tube in Sep. 1959 at Norfolk Naval Shipyard. It is understood, however, that surface firing of the Polaris is no longer under serious study.

Photographs
A large starboard bow surface view of Observation Island appears in the 1959-60 edition.

Cancellation
The proposed conversion of a "Mariner" type cargo ship into a Fleet Ballistic Missile Ship, EAG 155, equipped for long range operations, was cancelled.

TRANSPORTS



BARRETT

1964, United States Navy, Official

3 "Barrett" Class

BARRETT (ex-President Jackson)

GEIGER (ex-President Adams)

UPSHUR (ex-President Hayes)

Displacement: 17,600 tons standard (19,600 tons full load)
 Measurement: 12,660 tons gross, 10,600 tons deadweight
 Dimensions: 500 (o.p.), 533 (o.a.) \times 73 \times 27 feet
 Machinery: Geared turbines, 1 shaft, S.H.P.: 13,750=19 to 20 kts. (cruising, see Engineering)
 Troops: 1,900 (400 officers, 1,500 men) see General

General

Maritime Administration type P2-S1-DN1. All three were built by the New York Shipbuilding Corporation, New Jersey. Originally laid down as passenger ships for the American President Lines but taken over by the Navy to be completed as troop transports, and were all assigned to the Military Sea Transportation Service as U.S. Naval Ships (non-commissioned naval vessels). Troop carrying capacity of 1,500 plus 396 cabin berths for officers and dependants. Troop lift can be increased by at least 1,000 men if necessary by converting recreation areas into berthing spaces. All spaces, compartments and holds are air-conditioned except the engine room and bridge.

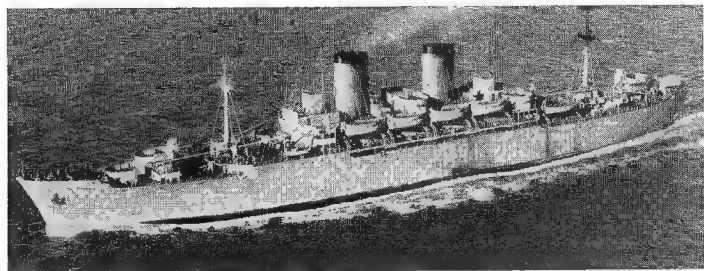
Engineering

On sea trials Barrett attained a speed of 21.5 knots at full power. 1.5 knots more than expected by engineers on the basis of shaft horse power developed.

Photographs

A larger starboard bow oblique aerial view of Uphur appears in the 1957-58 to 1959-60 editions, a larger starboard broadside view of Barrett in the 1953-54 to 1956-57 editions, and a port bow aerial view of Geiger in the 1960-61 to 1963-64 editions.

Name	No.	Laid down	Launched	Completed
Barrett	T-AP 196	1 June 1949	27 June 1950	15 Dec. 1951
Geiger	T-AP 197	1 Aug. 1949	9 Oct. 1950	13 Sep. 1952
Uphur	T-AP 198	30 Sep. 1949	19 Jan. 1951	20 Dec. 1952



GENERAL W. H. GORDON

1964, Skyfotos

4 P-2 "General" Class

T-AP

176 GENERAL J. C. BRECKINRIDGE (18 Mar. 1944)

112 GENERAL W. A. MANN (18 July 1943)

114 GENERAL WILLIAM MITCHELL (31 Oct. 1943)

117 GENERAL W. H. GORDON (USNS) (7 May 1944)

Displacement: 11,828 tons standard (20,175 tons full load)
 Dimensions: 573 (w.l.), 622 $\frac{1}{2}$ (o.a.) \times 75 $\frac{1}{2}$ \times 25 $\frac{1}{2}$ (max.) feet
 Machinery: DeLaval geared turbines, 2 shafts, S.H.P.: 17,000=20.6 kts.
 Boilers: 4 Foster-Wheeler, 465 lb. working pressure
 Troops: 5,240 (320 officers, 4,920 men) capacity
 Complement: 476 (43 officers, 433 men) total accommodation

General

All built by Federal S.B. & D.D. Co. at Kearny. Guns were removed from the three commissioned ships in 1955. General W. H. Gordon, T-AP 117, was reacquired from the Maritime Administration, returned to the Navy, and assigned to the MSTs in 1961, being manned by a civil service crew. The other three ships are manned by Navy crews.

Photographs

A larger port bow aerial view of General H. W. Butner appears in the 1956-57 to 1959-60 editions, a starboard bow surface view of General A. E. Anderson in the 1951-52 to 1955-56 editions and a port bow oblique aerial view of General William Mitchell in the 1960-61 to 1963-64 editions.

Disposals

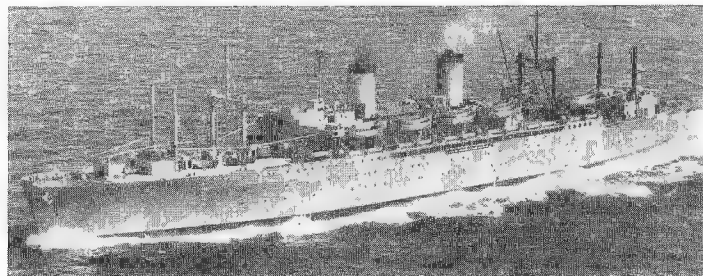
AP 111 General A. E. Anderson, AP 110 General John Pope, AP 116 General M. C. Meigs and AP 119 General William Weigel were transferred to the Maritime Administration Reserve Fleet in 1958, being excess to MSTs needs. General John Pope, T-AP 110, and General M. C. Meigs, T-AP 116, were stricken in 1959. General H. W. Butner, T-AP 113, was transferred to the Maritime Administration in May 1961. General G. M. Randall, T-AP 115, was stricken from the list in Sep. 1962 and transferred to the Maritime Administration.

The transports Le Jeune (former German liner Windhuk) built by Blohm & Voss, and Wakefield (ex-liner Manhattan) were stricken from the Navy List in 1957 and transferred to the Maritime Administration. Wakefield was sold for scrap in 1964.

Military Sea Transportation Service

On 1 Oct. 1949 the U.S. Navy's Military Sea Transportation Service took over Naval and Army Transport Services. Non-commissioned ships of the Military Sea Transportation Service (U.S. Naval Ships), Transports, Cargo Ships and Tankers, are identified by a blue and gold band on their funnels, with names painted on each bow and stern prefixed with the letters U.S.N.S. In other respects they are painted as other U.S. Navy Ships. "T" prefixed to designations indicates assignment to MSTs.

Transports—continued



GENERAL ALEXANDER M. PATCH

1964, Skyfotos

7 "Admiral" Class

T-AP

120 GENERAL DANIEL I. SULTAN (ex-Admiral W. S. Benson)

121 GENERAL HUGH J. GAFFEY (ex-Admiral W. L. Capps)

122 GENERAL ALEXANDER M. PATCH (ex-Admiral R. E. Coontz)

123 GENERAL SIMON B. BUCKNER (ex-Admiral E. W. Eberle)

124 GENERAL EDWIN D. PARTICK (ex-Admiral C. F. Hughes)

126 GENERAL MAURICE ROSE (ex-Admiral Hugh Rodman)

127 GENERAL WILLIAM O. DARBY (ex-Admiral W. S. Sims)

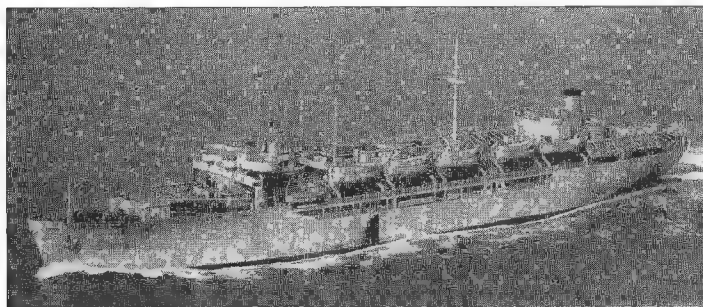
Displacement: 9,676 tons standard (20,120 tons full load)
 Dimensions: 609 (o.a.), 75 $\frac{1}{2}$ 26 $\frac{1}{2}$ (29 max.) feet
 Machinery: 2 G.E. Turbo-electric, 2 shafts, S.H.P.: 18,000 19 kts.
 Boilers: 4 Combustion Engineering "D" type
 Complement: 367 (37 officers, 330 men) total accommodation
 Troops: 4,680 (280 officers, 4,400 men) capacity

General

M.C. Type P 2-SE2-R1. Ex-"Admiral" Class. All built by Bethlehem-Aameda in 1944-45. T-AP 125 General Nelson M. Walker (ex-Admiral H. T. Mayo) was transferred to the Maritime Administration in 1958, but was reacquired by the Navy as a result of the Lebanon landings in July 1958. She was stricken from the "List of Naval Vessels" on 20 Jan. 1959, and transferred to the Maritime Administration as excess to MSTs requirements.

Photographs

A port bow oblique aerial view of General Simon B. Buckner appears in the 1960-61 to 1963-64 editions, a larger port bow oblique aerial view of General Maurice Rose in the 1952-53 to 1959-60 editions, and a larger starboard bow surface view of General Alexander M. Patch in the 1950-51 and 1951-52 editions.



GENERAL LE ROY ELTINGE

Added 1961, United States Navy, Official

2 "General" Class

T-AP

153 GENERAL R. M. BLATCHFORD

T-AP

154 GENERAL LE ROY ELTINGE

Displacement: 10,034 tons standard (17,250 tons full load)
 Dimensions: 523 (o.a.) \times 71 $\frac{1}{2}$ \times 26 $\frac{1}{2}$ (max.) feet
 Machinery: Westinghouse turbine, S.H.P.: 9,000 16.5 kts.
 Boilers: 2 Babcock & Wilcox
 Complement: 256 (32 officers, 224 men) total accommodation
 Troops: 3,823 (228 officers, 3,595 men) capacity

General

Type C4-S-A 1. "General" Class. Built by Kaiser Co., Richmond, California, in 1943-45. Carry 1,500 to 3,000 troops. T-AP 146, 148, 157, 159 were laid up in the Navy's Reserve Fleets in 1954. T-AP 135 and 155 were stricken from the Navy List and transferred to the Maritime Administration in 1956.

Twelve of the "General" class transports, T-AP 134, 137, 138, 139, 140, 143, 144, 145, 150, 151, 156 and 158, were transferred to the Maritime Administration in 1958 as excess to M.S.T.S. requirements (T-AP 134, 137, 143 and 145 were stricken in 1959). Of the remaining ten, T-AP 153 and 154 are in the M.S.T.S. General A. W. Greely, 141, General C. H. Muir, 142, General W. F. Hase, 146, General E. T. Collins, 147, General M. L. Hersey, 148, General I. M. McRae, 149, General C. C. Ballou, 157, and General Stuart Heintzelman, 159 were transferred to the Maritime Administration in 1960.

Photographs

A larger starboard bow oblique aerial view of General M. L. Hersey appears in the 1958-59 and 1959-60 editions, a larger port bow aerial view of General M. B. Stewart in the 1952-53 to 1957-58 editions, and a starboard quarter oblique aerial view of General W. F. Hase in the 1960-61 edition.

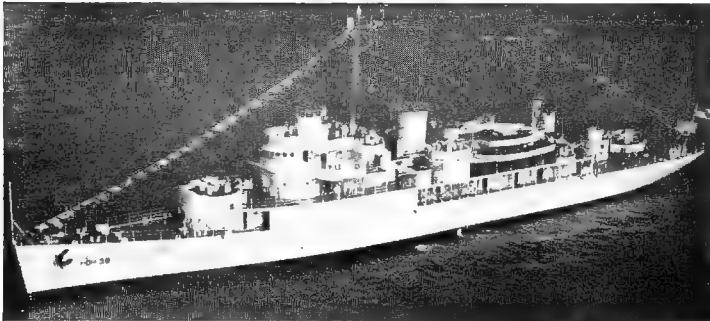
Transfers

Frederick Funston, T-AP 178, James O'Hara, T-AP 179, David C. Shanks, T-AP 180, Fred C. Ainsworth, T-AP 181, George W. Goethals (photograph in the 1952-53 to 1960-61 editions), T-AP 182, and Henry Gibbins, T-AP 183, were stricken and transferred to the Maritime Administration in 1960, as excess to Military Sea Transportation Service requirements. (Henry Gibbins had been turned over to the New York Maritime College at Fort Schuyler as a training vessel on a loan basis).

T-AP 186, Sergeant Charles E. Mower, was stricken in 1960 and transferred to the Maritime Administration in excess to MSTs needs. Sister ships T-AP 185 Private William H. Thomas (ex-Rixey) and T-AP 184 Private Eldon H. Johnson (ex-Pinkney) were transferred to the Maritime Administration late in 1957.

T-AP 202, Marine Serpent, was returned to Maritime Administration in 1955. All four transports of the C4-S-A3 type, T-AP 193 Marine Adder, T-AP Marine Lynx, T-AP 195 Marine Phoenix and T-AP 199 Marine Carp, were transferred to the Maritime Administration in 1958 as excess to MSTs needs. T-AP 184, 185, and 199 were stricken in 1959.

SEAPLANE TENDERS (AVP)



DUXBURY BAY Added 1960, courtesy "Our Navy"

5 "Barnegat" Class

CORSON GREENWICH BAY SUISUN
DUXBURY BAY VALCOUR

Displacement: 1,766 tons standard (2,800 tons full load)
Dimensions: 300 (w.l.), 310½ (o.a.) × 41½ × 13½ feet
Guns: 1—5 inch, 38 cal., 5—40 mm. AA. (guns vary)
Machinery: 2 diesels, 2 shafts. B.H.P.: 6,080=18 kts.
Complement: 215

General Officially rated as Seaplane Tenders, Small, but actually employed more like patrol vessels. Greenwich Bay, Duxbury Bay and Valcour rotate as COMID EAST Force Flagships. Rehoboth and San Pablo were fitted for oceanographical surveying. Other ships of this class have been adapted for various duties: Corson and Suisun are out of commission, in reserve, and the remaining three are to decommission in 1966-67.

Gunnery Original main armament of 4—5 inch guns was severely reduced to save top weight. Stern armament varies: Suisun has no guns on stern.

Transfer Oyster Bay, former Motor Torpedo Boat Tender (AVP 28, ex-AGP 6) was transferred to Italy on 23 Oct. 1957, and renamed Pietro Cavezzale. Gardiners Bay, AVP 39, was transferred to the Norwegian Navy on 17 May 1958 and renamed Haaken VII. Orca, AVP 49, was transferred to Ethiopia at the end of 1961 and renamed Ethiopia. Another was transferred to Greece.

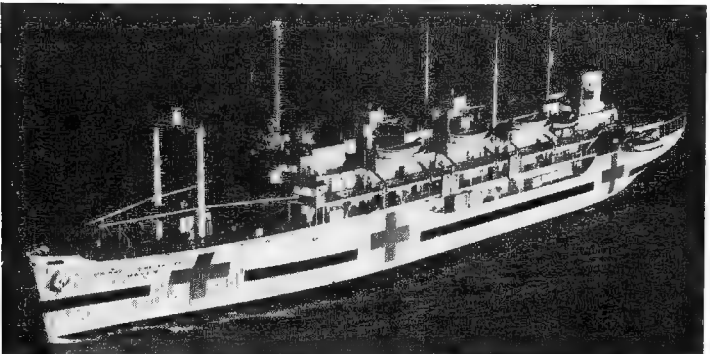
Weather Ships Of this class, Abescon, Barataria, Bering Strait, Casco, Castle Rock, Chinoteague, Cook Inlet, Coos Bay, Half Moon, Humboldt, Mackinac, Matagorda, Rockaway, Unimak, Yakutat, were transferred to the U.S. Coast Guard for duty as Weather Ships in 1948-49.

Reclassification San Carlos, AVP 51, was reclassified as an Oceanographical Research Vessel and renamed Josiah Willard Gibbs, AGOR 1, on 15 Dec. 1958 (see page 395).

Disposals Barnegat, AVP 10, was stricken from the Navy List on 23 May 1958, Floyds Bay, on 1 Mar. 1960, and Onslow, AVP 48, Shelikof, AVP 52, and Timbalier, AVP 54 in 1960.

No.	Name	Builders	Launched
AVP 37	Corson	Lake Washington Shipyard, Houghton, Wash.	15 July 1944
AVP 38	Duxbury Bay		2 Oct. 1944
AVP 41	Greenwich Bay		18 Mar. 1945
AVP 53	Suisun		14 Mar. 1943
AVP 55	Valcour		5 June 1943

HOSPITAL SHIPS (AH)



HAVEN 1964, United States Navy, Official

2 "Haven" Type

AH 12 HAVEN (ex-Marine Hawk) AH 16 REPOSE (ex-Marine Beaver)

Displacement: 11,141 tons standard (15,400 tons full load)
Dimensions: 496 (w.l.), 520 (o.a.) × 71½ × 24 feet
Machinery: G.E. geared turbines. S.H.P.: 9,000=18.3
Boilers: 2 Babcock & Wilcox
Complement: Accommodation for 574 (76 officers, 498 men)

General Built by the Sun S.B. & D.D. Co., Chester, Pa. Maritime Commission C 4-S-B2 Type. Beds for 802 patients. Air conditioned throughout. Haven, launched on 24 June 1944, and first commissioned on 5 May 1945, has a flight deck aft (square red cross landing platform) for the reception and air evacuation of wounded by helicopter. She is in service at Long Beach, California. Consolation was chartered to a private group, operated by American President Lines, as a floating laboratory and medical school in South-East Asia in 1961. She was renamed Hope by the People to People Health Foundation Inc. The U.S. Navy signed the charter on 16 Mar. 1960. The \$200,000 overhaul was undertaken by the Puget Sound Bridge and Dry Dock Company in 1960. Of this class, Benevolence, AH 13 sank after a collision with a freighter off San Francisco in Aug. 1950. Sanctuary, AH 17, and Tranquility, AH 14, were stricken from the List of Naval Vessels and transferred to the Maritime Administration Reserve Fleet in 1961. Repose, AH 16, was stricken in Sep. 1962 and transferred to Maritime Administration, but she was reacquired from the Maritime Administration in 1965, to be recommissioned for Pacific service. The green stripe was removed from all hospital ships in 1953.

SATELLITE COMMUNICATIONS SHIP



KINGSPORT 1964, United States Navy, Official

1 Ex-AK Type

KINGSPORT T-AG 164 (ex-Kingsport Victory, T-AK 239)

Displacement: 7,190 tons light (10,680 tons full load)
Dimensions: 455 (o.a.) × 62 × 24 (max.) feet
Machinery: Geared turbines, 1 shaft, S.H.P.: 8,500=17 kts.
Complement: 74 crew, 52 Navy and civilian technicians

General Built in 1944 by the California Shipbuilding Corporation, Los Angeles. Former cargo ship in the MSIS fleet. Name shortened, ship reclassified, and converted in 1961-62 by Williamette Iron & Steel Co., Portland, Oregon, into the world's first satellite communications ship, for Project Advent, involving the promotion of a terminal to meet the required military capability for high capacity, world-wide radio communications, using high altitude hovering satellites, and the installation of ship-to-shore communications, facilities, additional electric power generating equipment, a helicopter landing platform, aerological facilities, and a 30-ft. parabolic communication antenna housed in a 53-ft. diameter plastic radome abaft the superstructure. Painted white for operations in the tropics.

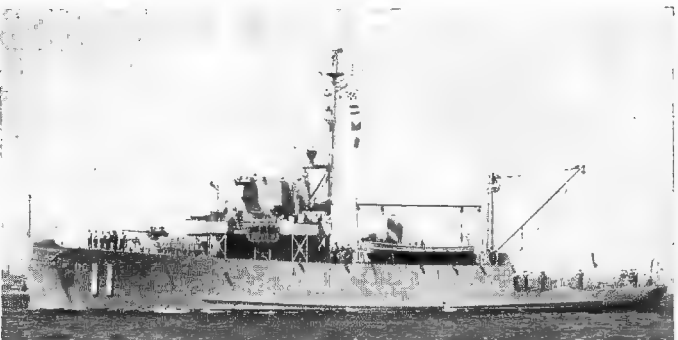
DEGAUSSING VESSELS (ADG)

1 Ex-Fleet Minesweeper Type

ADG 383 SURFBIRD (ex MSF 383)

Displacement: 890 tons standard (1,250 tons full load)
Dimensions: 215 (w.l.), 221½ (o.a.) × 32½ × 10½ feet
Machinery: Diesel electric. 2 shafts. B.H.P.: 3,532=18 kts.
Complement: 70

General Built by American Shipbuilding Co., Lorain, Ohio. Laid down on 15 Feb. 1944. Launched on 31 Aug. 1944. Completed (first commissioned) on 25 Nov. 1944. Former Fleet Minesweeper of the steel-hulled type, MSF (ex-AM), reclassified as ADG on 18 May 1957.



AMPERE Added 1957, Ted Stone

3 Ex-Escort PCE Type

ADG 8 LODESTONE (ex-PCE 876 (30 Sep. 1943) ADG 10 DEPERM (ex-PCE 883, 14 Jan. 1944)
9 MAGNET (ex-PCE 879, 1 Sep. 1943)

Displacement: 640 tons standard (900 tons full load)
Dimensions: 184½ (o.a.) × 33 × 9½ feet
Machinery: Diesel, 2 shafts. B.H.P.: 2,400=16 kts.

General Launch dates above. Named on 1 Feb. 1955. All out of commission, in reserve. Sister ship Ampere, ADG 11 (ex-Drake, AM 359) was stricken from the Navy List on 1 July 1961.

PATROL VESSELS (YP)

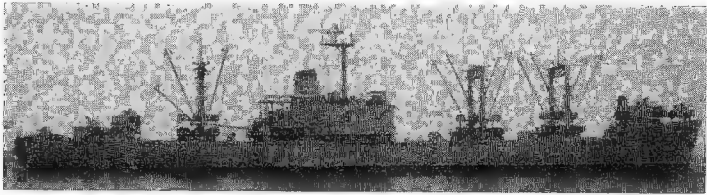
12 Navigation Training Type

YP 654 YP 656 YP 658 YP 660 YP 662 YP 664
YP 655 YP 657 YP 659 YP 661 YP 663 YP 665

Displacement: 56 tons standard (60 tons full load)
Dimensions: 80 (o.a.) × 17½ × 5 feet
Machinery: Diesel, 2 shafts. B.H.P.: 320

General YP 654-663 were built by Stephen Bros., Inc., Stockton, Calif. YP 654-658 under the 1956 Fiscal Year Programme, and YP 659-663 under the 1957 Fiscal Year Programme. All laid down Jan.—Nov. 1957, launched July 1957-Mar. 1958, and completed Mar. 1958-Nov. 1958. YP 664 and 665 were built by Elizabeth City Shipbuilders, Inc., Elizabeth City, North Carolina, under the 1959 Fiscal Year Programme. Floating classrooms for training midshipmen in seamanship and navigation at the United States Naval Academy. Wooden hull construction with aluminium deck houses. Surface search radar, gyro and magnetic compass, navigational plotting equipment. Potential patrol craft for national emergency. Three other patrol vessels, YP 585, 587, 589, are also used for training at Annapolis. YP 647, 648, 649, 650 and 651 were stricken on 1 Mar. 1960, and YP 584, 586, 589 and 590 on 1 Aug. 1964. Two more YPs were authorised in the Fiscal Year 1965 programme.

AMMUNITION SHIPS (AE)



MAUNA KEA

1965, Hajime Fukaya



SURIBACHI

Added 1960, Skyfotos

5 "Suribachi" Class

- | | | | |
|----|-----------------------------|----|----------------------------|
| AE | 25 HALEAKALA (17 Feb. 1959) | AE | 24 PYRO (5 Nov. 1958) |
| | 22 MAUNA KEA (3 May 1956) | | 21 SURIBACHI (2 Nov. 1955) |
| | 23 NITRO (25 June 1958) | | |

Displacement: 7,470 tons light, 10,000 tons standard (17,500 tons full load)
Measurement: 7,500 tons deadweight
Dimensions: 488½ (pp.), 512 (o.a.)×72×29 (max.) feet
Guns: 4—3 inch, 50 cal. AA. (2 twin mounts)
Machinery: Steam turbines, 1 shaft, H.P.: 16,000=21 kts.
Radius: 10,000 miles at 18·5 kts. endurance
Complement: 316 (18 officers, 298 men)

Construction

Designed especially to meet the strenuous requirements of rapid replenishment at sea. Built from the hull up as Navy ships. Have elevators for internal handling of ammunition and explosives, up-to-date methods of stowage, air conditioning, redesigned crew quarters and habitability improvements. Built by Bethlehem, Sparrows Point, Md., Shipyard. *Mauna Kea* was laid down on 16 May 1955, *Suribachi* on 31 Jan. 1955. Launch later above. *Suribachi* was completed in Nov. 1956. *Mauna Kea* on 30 Mar. 1957. *Nitro* was laid down on 20 May 1957, *Pyro* on 21 Oct. 1957. *Haleakala* on 10 Mar. 1958. *Nitro* commissioned on 1 May 1959, *Pyro* on 24 July 1959, *Haleakala* on 3 Nov. 1959. Another to have been built under the 1959 program was cancelled. *Nitro* and *Pyro* are fitted with constant tension devices designed for rapid transfer of ammunition.

Conversion

The two "FAST" (Fast Automatic Shuttle Transfer) system ammunition ship conversions in the 1963 Program, *Haleakala* and *Suribachi*, were the first of the five ships of this class to be modernised for the rapid handling and transfer of missiles up to the size of "Talos." This conversion provides for three holds to be rigged for missile stowage; completely mechanised handling facilities to transfer missiles from stowage to transfer stations; and the installation of the fast automatic shuttle transfer system. This modernisation will result in safer missile handling and a greatly reduced transfer time. The two after mountings were removed for the laying on of a helo platform. The remaining three ships underwent the "FAST" conversion in the 1964 conversion program.

Photographs

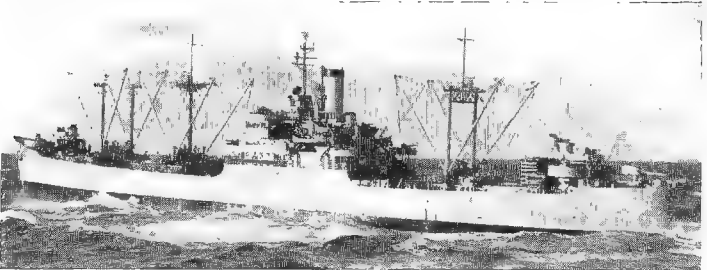
Starboard bow surface view of *Pyro* in the 1962-63 to 1964-65 editions.

2 + 2 New Construction

Displacement: 20,500 tons full load
Dimensions: 564 (o.a.)×81 feet
Guns: 8—3 inch, 50 cal. (4 twin)

General

Two authorised in the 1965 programme. First of a new class of ammunition ships with optimum seaworthiness and a sustained speed of 20 knots. Equipped with FAST. To be built by Electric Boat Division, General Dynamics Corp., Quincy, at a cost of \$45,623,162. Will carry helicopters. Two more AE in the 1966 programme.



PARAKUTIN

1961, United States Navy, Official

7 "Wrangell" Class

- | | | | |
|----|--|----|--|
| AE | 19 DIAMOND HEAD (3 Feb. 1945) | AE | 18 PARICUTIN (30 Jan. 1945) |
| | 14 FIREDRAKE (ex- <i>Winged Racer</i> , 12 May 1944) | | 15 VESUVIUS (ex- <i>Gamecock</i> , 26 May 1944) |
| | 17 GREAT SITKIN (26 Jan. 1945) | | 12 WRANGELL (ex- <i>Midnight</i> , 14 Apr. 1944) |
| | 16 MOUNT KATMAI (6 Jan. 1945) | | |

Displacement: 6,350 tons light (15,295 tons full load)
Dimensions: 435 (w.l.), 459½ (o.a.)×63×28½ feet
Guns: 1—5 inch, 4—3 inch, 4—40 mm. AA.
Machinery: Geared turbines, S.H.P.: 6,000=16·4 kts.
Complement: 267

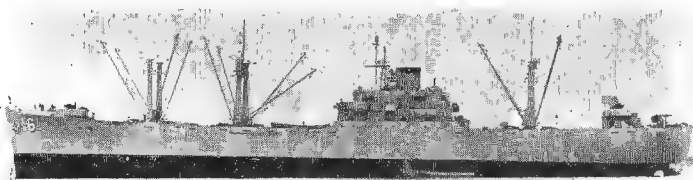
General

C2 type. A photograph of *Wrangell* appears in the 1946-47 to 1954-55 editions, and of *Mount Katmai* in the 1955-56 to 1960-61 editions.

Recent Disposals

Of the two ammunition ships of the "Sangay" class, *Sangay* was disposed of in 1961, and *Formalhaut* transferred to the Maritime Administration in Sep. 1962.

Ammunition Ships—continued



SHASTA

1965, United States Navy, Official

5 "Lassen" Class

- | | | | |
|----|--|----|--|
| AE | 8 MAUNA LOA (14 Apr. 1943) | AE | 5 RAINIER (ex- <i>Rainbow</i> , 1 Mar. 1941) |
| | 9 MAZAMA (15 Aug. 1943) | | 6 SHASTA (ex- <i>Comet</i> , 9 July 1941) |
| | 4 MOUNT BAKER (ex- <i>Kilauea</i> , ex-Surprise 6 Aug. 1940) | | |

Displacement: 5,220 tons light (14,225 tons full load)
Dimensions: 435 (w.l.), 459 (o.a.)×63×26½ feet
Guns: 1—5 inch, 4—3 inch, 4—40 mm. AA.
Machinery: 2 Nordberg diesels. B.H.P.: 6,000=15·3 kts.
Complement: 281

General

All built by Tampa S.B. Co. Modified C2 type, converted by Navy. Carries 5,000 tons cargo. War loss: *Mount Hood*. A photograph of *Mazuma* appears in the 1955-56 to 1957-58 editions. *Akutan*, AE 13, was disposed of in 1961. *Mazuma* and *Mauna Loa* were reacquired and returned to the Navy in Sep. 1961 and recommissioned on 27 Nov. 1961. *Lassen*, AE 3, was stricken from the List of Naval Vessels in 1961 and transferred to the Maritime Administration.

GENERAL STORES ISSUE SHIPS (AKS)



ANTARES

1962, A. & J. Pavia

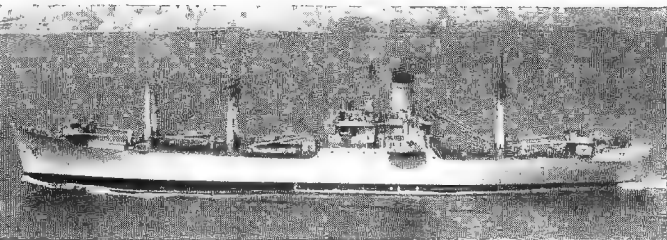
2 "Altair" Class

- | | |
|--|-------------------------------------|
| ALTAIR (ex- <i>Aberdeen Victory</i>) 20 Apr. 1944 | ANTARES (ex- <i>Nampa Victory</i>) |
|--|-------------------------------------|

Displacement: 4,420 tons light (15,580 tons full load)
Dimensions: 455½ (o.a.)×62×28½ (max.) feet
Guns: 8—40 mm. AA.
Machinery: Geared turbines, S.H.P.: 8,500=16·5 kts
Complement: 230 (17 officers, 213 men) total accommodation

General

VC 2-AP 3 type. Laid down in 1944. *Altair*, AKS 32 (ex-AK 257) was reclassified as AKS in 1952. Now has a helicopter platform on the fantail. *Antares*, AKS 33 (AK 258) was reclassified as AKS on 1 Apr. 1959. She decommissioned on 15 Sep. 1964.



CASTOR

1957, Ted Stone

2 "Castor" Class

- | | |
|--------------------------------|----------------------------------|
| CASTOR (ex- <i>Challenge</i>) | POLLUX (ex- <i>Nancy Lykes</i>) |
|--------------------------------|----------------------------------|

Displacement: 6,365 tons light, (14,400 tons full load)
Dimensions: 435 (pp.), 459½ (o.a.)×63×26½ (max.) feet
Guns: 1—5 inch, 4—3 inch
Machinery: Geared turbines, S.H.P.: 6,000=16·4 kts.
Complement: 205 (15 officers, 190 men)

General

Nos. AKS 1 and AKS 4 (ex-AK 54), respectively. C2 Cargo and C2-F types. Cargo capacity: 5,400 tons. Both built by Federal Shipbuilding & Dry Dock, Kearny, N.J., and launched 20 May 1939 and 1941, respectively. *Castor* completed a \$400,000 internal conversion at San Francisco in 1956 for carrying combined "technical" and general stores.

Disposals

Of this type *Mercury*, AKS 20 (ex-AK 42, ex-*Mormacfern*, ex-*Lightning*) was stricken in 1960.

All five of the LST type, *Chimon*, AKS 31 (ex-AG 150, ex-LST 1102), *Collington*, AKS 29 (ex-AG 148, ex-LST 1085), *Electron*, AKS 27 (ex-AG 146, ex-LST 1070), *League Island*, AKS 30 (ex-AG 149, ex-LST 1097), and *Proton*, AKS 28 (ex-AG 147, ex-LST 1078) were stricken in 1960.

All six of the "Island" class, *Avery Island*, AKS 24, *Belle Isle*, AKS 21, *Coaster's Harbor*, AKS 22, *Cuttyhunk Island*, AKS 23, *Indian Island*, AKS 25, and *Kent Island*, AKS 26, were also stricken in 1960.

Cancellation

The prototype General Stores Issue Ship planned by Bethlehem Steel Co., Quincy, was not authorised and not again requested. See particulars in 1958-59 edition.

STORE SHIPS (AF)



RIGEL 1965, A. & J. Pavia

2 "Rigel" Class

RIGEL (15 Mar. 1955)
Displacement: 7,950 tons light, 15,540 tons full load
Measurement: 10,850 tons gross
Dimensions: 475 (w.l.), 502 (o.a.)×72×29 (max.) feet
Guns: 8—3 inch
Machinery: Steam turbine, 1 shaft. S.H.P.: 12,500=18 kts.

VEGA (26 Apr. 1955)
Displacement: 7,950 tons light, 15,540 tons full load
Measurement: 10,850 tons gross
Dimensions: 475 (w.l.), 502 (o.a.)×72×29 (max.) feet
Guns: 8—3 inch
Machinery: Steam turbine, 1 shaft. S.H.P.: 12,500=18 kts.

General
Contract awarded to Ingall's Shipbuilding Co., Pascagoula on 13 Aug. 1953. R3-S-4A type. Cost \$12,440,000 each. Laid down on 15 Mar. and 24 May 1954, respectively. Launch dates above. *Rigel* commissioned in 1955 and *Vega* on 10 Nov. 1955. 360,000 cu. ft. of refrigerated space. These were the first AFs built since the Second World War, with Navy designed hulls. Nos. AF 58 and AF 59, respectively.



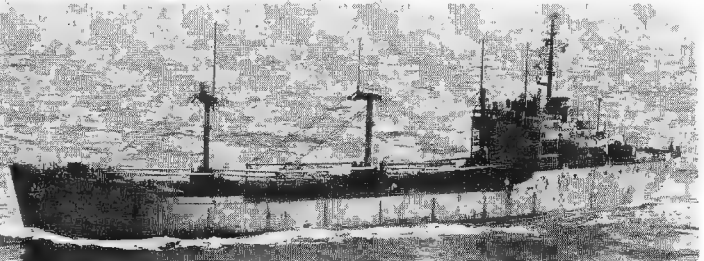
ALSTEDE 1962, Ing. Augusto Nani

6 "Alstede" Class

ALSTEDE (ex-Ocean Chief)
ALUDRA (ex-Matchless)
BELLATRIX (ex-Fleetwood)
Displacement: 6,914 tons light (15,500 tons full load)
Dimensions: 459½×63×28 feet
Machinery: Turbine. S.H.P.: 6,000=16 kts.
Complement: 17 officers, 275 men

PICTOR (ex-Great Republic)
PROCYON (ex-Flying Scud)
ZELIMA (ex-Golden Rocket)
Displacement: 6,914 tons light (15,500 tons full load)
Dimensions: 459½×63×28 feet
Machinery: Turbine. S.H.P.: 6,000=16 kts.
Complement: 17 officers, 275 men

General
Nos. AF 48, AF 55, AF 62, AF 49, AF 61, and AF 54, respectively. All built by Moore Dry Dock Co. and launched in 1945 and 1946. R2-S-BV design reefer type. *Aludra* was acquired for conversion by the Navy. *Pictor* was transferred from Maritime Administration to U.S. Navy. C2-S-B1 type similar to R2-S-BVI design, except that R2s were built as reefers and C2s as cargo ships. Same type as "Eagle" class. *Bellatrix* and *Procyon* were acquired from the Maritime Administration and commissioned in Nov. 1961. C2-S-B1 type.



BONDIA 1965, Skyfotos

2 "Adria" Class

BONDIA (9 Nov. 1944) (U.S.N.S.)
Displacement: 3,139 tons light (7,435 tons full load)
Dimensions: 320 (w.l.), 338½ (o.a.)×50×21 (max.) feet
Machinery: Nordberg diesel. B.H.P.: 1,700=11.5 kts.

LAURENTIA (ex-Wall and Crown, 12 Dec. 1944) (U.S.N.S.)
Displacement: 3,139 tons light (7,435 tons full load)
Dimensions: 320 (w.l.), 338½ (o.a.)×50×21 (max.) feet
Machinery: Nordberg diesel. B.H.P.: 1,700=11.5 kts.

General
Launch dates above. Nos. AF 42 and AF 44, respectively. *Kerstin* and *Latona* were returned to Maritime Commission. 2,100 tons cargo. R1-M-AV 3 type. *Bondia* and *Laurentia* are assigned to Military Sea Transportation Service, unarmed. *Valentine* was transferred to the Maritime Administration by MSTs on 16 Apr. 1959. *Adria*, *Arequipa*, *Cordoba*, *Karin*, *Lioba*, *Malabar* and *Merapl* were stricken from the Navy List and transferred to the Maritime Administration Reserve Fleet in 1960-61.

2 "Eagle" Class

BALD EAGLE
Displacement: 7,430 tons light (12,800 tons full load)
Dimensions: 459½ (o.a.)×63×24 (max.) feet
Machinery: Turbine. S.H.P.: 6,000=16.4 kts.

BLUE JACKET
Displacement: 7,430 tons light (12,800 tons full load)
Dimensions: 459½ (o.a.)×63×24 (max.) feet
Machinery: Turbine. S.H.P.: 6,000=16.4 kts.

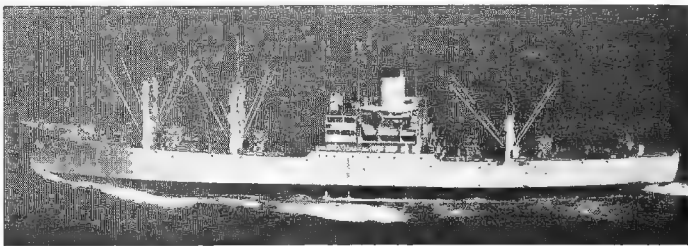
General
Both built by Moore Dry Dock Co. Launched in 1942. Nos. T-AF 50 and T-AF 51, respectively. Military Sea Transportation Service Ships designated USNS. MC Type C2-S-B1. Sister ship *Golden Eagle* was converted, renamed *Arcturus* (see Col. 2). A photograph of *Blue Jacket* appears in the 1959-60 to 1964-65 editions.

1 "Aldebaran" Class

ALDEBARAN (ex-Staghound)
Displacement: 6,501 tons light (13,860 tons full load)
Dimensions: 435 (w.l.), 459½ (o.a.)×63×25½ (max.) feet
Guns: 4—3 inch
Machinery: Geared turbines. S.H.P.: 6,000=16.4 kts.
Boilers: 2 Babcock & Wilcox

General
Launched on 21 June 1939. No. AF 10. C-2 Cargo type. A photograph of *Aldebaran* appears in the 1957-58 edition.

Store Ships—continued



SIRIUS 1959, United States Navy, Official

2 "Sirius" Class

ARCTURUS (ex-Golden Eagle) **SIRIUS** (ex-S.S. Trade Wind)
Displacement: 7,430 tons light (12,800 tons full load)
Dimensions: 459½ (o.a.)×63×24 feet
Machinery: Geared turbines. S.H.P.: 6,000=16.4 kts.

General
C2-S-B1 refrigerator ships. *Sirius* was launched and completed in 1943, acquired by the Navy 1956 renamed, and commissioned on 12 Jan. 1957. She replaced *Polaris*, which was removed from the Navy List and transferred to the Maritime Administration on 12 Jan. 1957. *Arcturus* was commissioned on 11 Nov. 1961. *Sirius* decommissioned in Feb. 1964. Nos. AF 52 and AF 60, respectively.

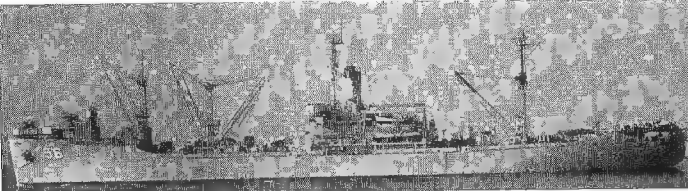


HYADES Added 1959, Ing. Augusti Nani

2 "Hyades" Class

GRAFFIAS (ex-Topa Topa) **HYADES** (ex-Iberville)
Displacement: 6,313 tons light (15,300 tons full load)
Dimensions: 445 (pp), 463½ (o.a.)×63×28 feet
Guns: 1—5 inch, 4—3 inch
Machinery: Geared turbines. S.H.P.: 6,000=15.5 kts.
Boilers: 2 Babcock & Wilcox
Complement: 252

General
Nos. AF 29 and 28. Launched on 12 Dec. 1943 and 12 June 1942, respectively. Cargo capacity 5,300 tons. Another photograph of *Hyades* appears in the 1954-55 to 1957-58 editions.



DENEbola 1965, courtesy Godfrey H. Walker, Esq.

2 "Denebola" Class

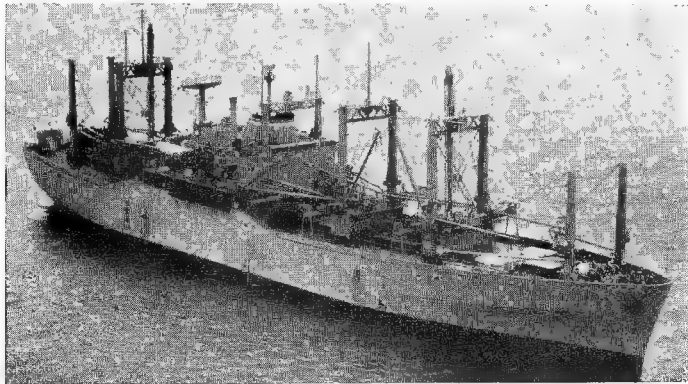
DENEbola (ex-Hibbing Victory) **REGULUS** (ex-Escanaba Victory)
Displacement: 6,700 tons light (12,130 tons full load)
Measurement: 8,000 tons deadweight
Dimensions: 455½×62×28½ feet
Guns: 8—3 inch, 50 cal. automatic AA. (twin mounts)
Machinery: Westinghouse geared turbines, 1 shaft. S.H.P.: 8,500=17 kts.
Complement: 225

General
Maritime administration ships acquired by the U.S. Navy in 1952, for conversion to refrigerator store ships. AF 56 and AF 57, respectively. VC2-S-AP 3 type. Built in 1944 by Oregon Shipbuilding Co. *Denebola* commissioned on 20 Jan. 1954 after conversion by Todd, Brooklyn. *Regulus* on 3 Feb. 1954. Insulated holds, refrigerated system, quick acting hatch covers. Conversion cost \$8,000,000. Other photographs of *Denebola* appear in the 1956-57 to 1964-65 editions.

2 Converted Type

ASTERION (ex-Arcadia Victory) **PERSEUS** (ex-Union Victory)
General
Victory ships (VC 2-S-AP 3 type). Acquired from the Maritime Administration in 1962 and converted at Portland, Oregon, by Willamette Iron & Steel Co. under the 1962 Program. Of the same type as *Denebola* and *Regulus*, see above, except they are unarmed and manned by civilian crews. USNS. MSTs. Nos. T-AF 63 and 64, respectively.
Disposals
The aviation supply ship *Jupiter*, AVS 8, ex-AK 43 (ex-Santa Catalina, ex-Flying Cloud) was stricken from the Navy List and transferred to the Maritime Administration Reserve Fleet in Sep. 1964.

VEHICLE CARGO SHIPS (LSV)



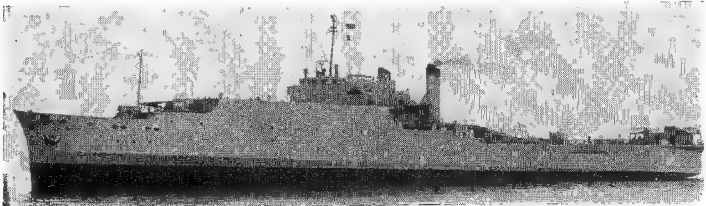
COMET 1959, United States Navy
2 "Comet" Class
Roll-on Roll-off Amphibious Type

T-LSV 9 SEA LIFT
Displacement: 11,130 tons light, 16,940 tons standard (21,700 tons full load)
Measurement: 15,750 tons gross, 12,100 tons deadweight
Dimensions: 499½ (pp.), 540 (o.a.) × 83 × 24 (standard), 29 (max.) feet
Machinery: Geared steam turbines, 2 shafts. S.H.P.: 19,400 20 kts. sustained
Boilers: 2 water tube
Oil fuel: 2,061 tons
Radius: 10,000 miles at 20 kts. endurance
Complement: 62 plus 12 passengers

General
Improved roll-on/roll-off vehicle cargo ship. Maritime Administration C4-ST-67a type. Built by the Puget Sound Bridge & Dry Dock Co., (now Lockheed Shipbuilding and Construction Co.) Seattle, Wash., at a cost of \$15,895,500. Authorised under the Fiscal Year 1963 programme. Laid down on 19 May 1964 for launching on 17 Apr. 1965 and completion in Feb. 1966. Designed for point-to-point sea transportation of Department of Defence self-propelled, fully-loaded, wheeled, tracked and amphibious vehicle and general cargo. Her configuration of internal ramps, stern ramp and side openings will provide for quick loading and unloading. Unarmed and designated MSTs USNS. A second ship of the class was authorised under the Fiscal Year 1964 programme, but funds were not provided. Requested again in Fiscal Year 1965 but again funds not provided. A total of six are planned.

T-LSV 7 (ex-T-AK 269) COMET
Displacement: 7,605 tons light (18,150 tons full load)
Measurement: 12,750 tons gross, 6,500 tons deadweight
Dimensions: 465 (pp.), 499 (o.a.) × 78 × 28½ (max.) feet
Machinery: G.E. geared turbines, 2 shafts. S.H.P.: 13,200 18 kts.
Boilers: 2 Babcock & Wilcox
Complement: 73

General
Roll-on. Roll-off vehicle carrier built for MSTs by Sun Shipbuilding & Dry Dock Co. C3-ST-14A type. Laid down 15 May 1956. Launched on 31 July 1957. Completed on 27 Jan. 1958 (taken over on 30 Sep. 1957). Has ramp system for loading and discharging. The hull is strengthened against ice. Fitted with stern ramp. Can accommodate 700 vehicles in two after holds. The forward holds are for general cargo. Equipped with Denny-Brown Stabilisers. Reclassified from T-AK 269 to T-LSV 7 on 1 June 1963.



TAURUS 1964, United States Navy, Official
1 Ex-LSD Type

T-LSV 8 (ex-AK 273) TAURUS (ex-S.S. Carib Queen, ex-Fort Snelling, LSD 23).
Displacement: 6,000 tons standard (9,375 tons full load)
Dimensions: 454 (w.l.), 457½ (o.a.) × 72½ × 18 (max.) feet
Machinery: Westinghouse geared turbines, 2 shafts. S.H.P.: 9,000 = 15½ kts.

General
Former U.S. dock landing ship, laid down on 8 Nov. 1944 and hull built by the Gulf Shipbuilding Corporation, Chickasaw, Ala., in 1945, but not completed because of the end of the war. Converted into a roll-on, roll-off trailer ship in 1956 for commercial operation. Acquired by MSTs from the Maritime Administration in 1958. USNS, civilian crew. Reclassified from T-AK 273 to T-LSV 8 on 1 June 1963.

REPLENISHMENT FLEET OILERS (AOR)

2+2 New Construction

AOR 1 Displacement: 40,000 tons full load (revised official figures)
Dimensions: 675 (o.a.) × 95 × 35 feet
Guns: 8—3 inch, 50 cal. (4 twin)
Machinery: Geared turbines, 2 shafts, 20 kts. sustained speed
Boilers: 3 (18 kts. on 2 boilers)
Radius: 10,000 miles endurance at 17 kts.
Complement: 345 (20 officers, 325 men)

AOR 2

General
Two authorised under the Fiscal Year 1965 Programme; Fitted with helicopter platform: Will provide rapid replenishment at sea of petroleum products, ammunition, provisions and fleet freight to the operating forces. To be built by General Dynamics Corporation, Quincy. Two more AOR are in the 1966 programme.

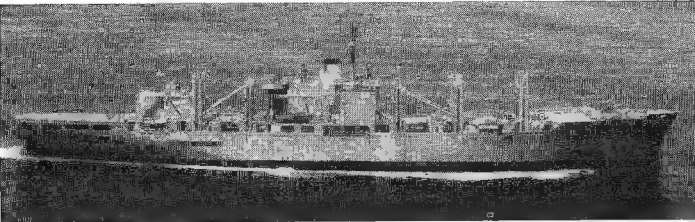
FAST DEPLOYMENT LOGISTIC SHIPS

2 New Construction

Displacement: 28,000 tons full load
Dimensions: 675 × 105 feet
Machinery: Gas turbine propulsion system

General
Ships of an entirely new design. In the 1966 New Construction Programme.

COMBAT STORE SHIPS (AFS)



SYLVANIA 1965, United States Navy, Official
3+3 "Mars" Class

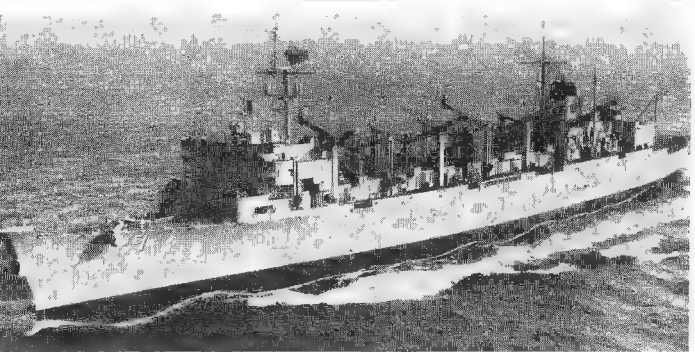
AFS 1 MARS Displacement: 16,500 tons full load
Dimensions: 530 (pp.), 581 (o.a.) × 79 × 24 feet
Guns: 8—3 inch, 50 cal. (4 twin)
Aircraft: 2 helicopters (UH-46A Sea Knight)
Machinery: Steam turbines, 1 shaft. S.H.P.: 22,000 ~ 20 kts.
Boilers: 3 Babcock & Wilcox (one spare)
Radius: 10,000 miles at 18½ kts.
Complement: 403 (25 officers, 378 men)

AFS 2 SYLVANIA

AFS 3 NIAGARA FALLS

General
All built by National Steel & Shipbuilding, San Diego, California. Of a new design with a completely new replenishment at sea system. "M" frames replace conventional king posts and booms, which are equipped with automatic tensioning devices to maintain transfer lines taut between the ship and the warships being replenished despite rolling and yawing. Helicopters are carried to fu-fil vertica. replenishment requirements for ships in a task force spread over a wide area. Mars was laid down on 5 May 1962, launched on 15 June 1963 and commissioned on 21 Dec. 1963. Sylvania was laid down on 18 Aug. 1962, launched on 15 Aug. 1963 and commissioned on 11 July 1964. Niagara Falls was authorised in the Fiscal Year 1964 Programme, for laying down on 22 May 1965 and launching on 26 Mar. 1965. AFS 4 and AFS 5 were authorised in the Fiscal Year 1965 Programme, and another AFS in the 1966 Programme.

FAST COMBAT SUPPORT SHIPS (AOE)



SACRAMENTO 1964, courtesy "Our Navy"

2+2 Underway Replenishment Type

AOE 1 SACRAMENTO Displacement: 19,200 tons light (53,600 tons full load)
Dimensions: 793 (o.a.) × 107 × 39½ feet
Guns: 8—3 inch, 50 cal., (4 twin)
Aircraft: 2 cargo helicopters aft. (UH 46A Sea Knight)
Machinery: Geared turbines, S.H.P.: 100,000 = 26 kts. sustained speed (engines built for battleship Kentucky)
Radius: 10,000 miles at 17 kts.
Complement: 600 (33 officers, 567 men)

AOE 2 CAMDEN

General
A new class of Fast Combat Support Ships (AOE) to supply task forces. Fitted with "FAST". They combine the functions of ammunition ships, cargo ships and fleet oilers. They carry one fifth more fuel than the latest fleet oilers (black oil, diesel oil and aviation spirit), and one quarter the capacity of the latest ammunition ship, including guided missiles, as well as 250 tons of dry cargo and 250 tons of frozen food. Oil capacity 177,000 barrels. Sacramento was built by Puget Sound Naval Shipyard under the Fiscal Year 1961 Programme. Cost \$66,000,000. Laid down on 30 June 1961, launched on 14 Sep. 1963 and commissioned on 15 Mar. 1964. Camden was built by New York Shipbuilding Corporation, Camden, New Jersey. Cost \$48,484,000. Laid down on 17 Feb. 1964 for launching on 29 May 1965 and commissioning in Apr. 1966. A third ship of this class in the Fiscal Year 1965 Programme is being built by Puget Sound Naval Shipyard. Another AOE is in the 1966 Programme.

CARGO-FBM RESUPPLY SHIPS

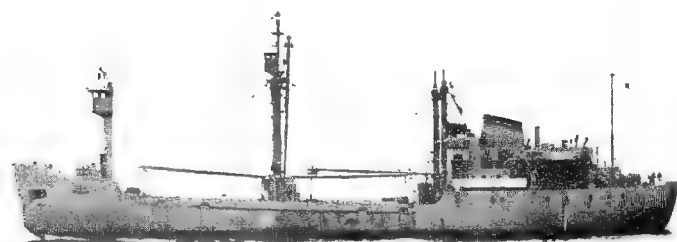
3 New Conversion

T-AK 279 NORWALK (ex-S.S. Norwalk Victory)
T-AK 280 FURMAN (ex-S.S. Furman Victory)
T-AK 281 VICTORIA (ex-S.S. Ethiopia Victory)

Displacement: 11,150 tons full load
Dimensions: 455 × 62 feet

General
Fleet ballistic missile resupply cargo ships AK (FBM). Norwalk was the first conversion of this VC 2-S-AP 3 type for supporting ballistic missile submarine operations. Designed as a one-stop cargo ship to provide complete resupply of a deployed fleet ballistic missile submarine tender. The logistic support includes "Polaris" missiles, submarine weapons, technical spares, packaged petroleum products, bottled gas, black oil and diesel fuel, general cargo, and frozen and dry provisions. Operated as an independent unit with a civilian (MSTS) crew and with a Navy unit embarked. She was converted from a "Victory" ship under the Fiscal Year 1963 Programme by Boland Machine and Mfg. Co., at a cost of \$3,439,792 delivered on 22 Nov. 1963 and accepted on 30 Dec. 1963. Conversion of Furman, authorised under the Fiscal Year 1964 Programme, was completed by American Shipbuilding Co., at a cost of \$3,338,000 in Oct. 1964. Conversion of Victoria, in the F.Y. 1965 Programme, completed by Philadelphia Naval Shipyard in Oct. 1965.

CARGO SHIPS (AK)



MIZAR

3 Arctic Type

1960, courtesy Mr. W. H. Davis.

T-AGOR 8 ELTANIN (ex-T-AK 270,
16 Jan. 1957)*T-AK 271 MIRFAK (5 Aug. 1957)
T-AGOR 11 MIZAR (ex-T-AK 272,
7 Oct. 1957)*

Displacement: 2,036 tons light, 4,942 tons full load
 Measurement: 2,486 tons gross, 1,300 tons deadweight
 Dimensions: 247½ (pp.), 256½ (w.l.), 262½ (o.a.)×51½×18½ feet
 Machinery: 2 ALCO diesels with Westinghouse electric motors. 2 shafts. B.H.P.: 3,200=13 kts.

General

Built for MSTs by Avondale Marine Ways, New Orleans, La. Designed for Arctic operation with hull strengthened against ice. C1-M E2-13a type. Laid down on 4 June 1956, 5 July 1956 and 21 Jan. 1957, respectively. Launch dates above. Taken over on 2 Aug. 1957, 4 Oct. 1957 and 22 Nov. 1957.

Conversion

* Eltanin was converted in 1961 into a scientific laboratory for Antarctic research program for the National Science Foundation. Equipped to study meteorology, the upper atmosphere, marine and terrestrial biology, physical oceanography, submarine geology, and geomagnetic conditions. Owned and operated by MSTs. Reclassified from T-AK 270 to T-AGOR 8 on 15 Nov. 1962. Mizar was reclassified T-AGOR 11 on 15 Apr. 1964.

2 "Victory" (AP 3) Type

ALCOR (ex-Rockland Victory)

BETELGEUSE (ex-Columbia Victory)

Displacement: 4,420 tons (Navy light), 15,580 tons full load)
 (Maritime Commission deadweight 10,850 tons)
 Dimensions: 455½ (o.a.)×62×28½ (max.) feet
 Guns: 8—40 mm. AA.
 Machinery: Geared turbines S.H.P.: 8,500=16.5 kts.

General

VC2-S-AP3 type. Laid down in 1944. Reactivated for the Navy in late 1951 from the Maritime Administration Reserve Fleet. AK 259 and 260 respectively. Both ships have been fitted with special equipment to transport material and supplies for fleet ballistic missile submarines. Sister ship Antares, AK 258, was reclassified as a General Stores Issue Ship, AKS, see previous page. A photograph of Alcor appears in the 1953-54 to 1957-58 editions.

Disposals

Of the "Alcona" class, Sussex, AK 213, was stricken on 1 Jan. 1960, and Alcona, AK 157, Beltrami, AK 162, Faribault, AK 179, and Grainger, AK 184, at the end of 1960.

All six vessels of the "Alchiba" class, namely Alchiba (ex-Charles E. Winsor), Algorab (ex-Elisha Whitney), Aquarius (ex-John D. Whitney), Centaurus (ex-Nathaniel Brown), Cepheus (ex-Richard W. Dixie) and Serpens (ex-William Lester) AK 261 to 266, respectively, N3-S-A2 type, non-commissioned vessels on Navy List, formerly on loan to R.O.K., but carrying U.S.N. names and designation, were stricken on 1 Feb. 1960 and disposed of.

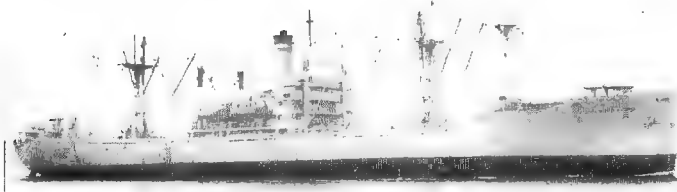
1 MA Type

T-AK 277 SCHUYLER OTIS BLAND

Displacement: 8,918 tons gross, 10,516 tons deadweight
 Dimensions: 478×66×30 feet
 Machinery: Steam turbine. Speed=18.5 kts.

General

Acquired from the Maritime Administration by the Military Sea Transportation Service in July 1961. The only ship of the type (C3-S-DX2 type). Designated USNS with civilian crew, and unarmed.



SERGEANT MORRIS E. CRAIN

1964, Wright & Logan

6 "Victory" (AP 2) Type

T-AK
241 PRIVATE FRANCIS X. MCGRAW
(ex-Wabash Victory)242 SERGEANT ANDREW MILLER
(ex-Radcliffe Victory)243 SERGEANT ARCHER T. GAMMON
(ex-Yale Victory)T-AK
244 SERGEANT MORRIS E. CRAIN
(ex-Mills Victory)251 LT. GEORGE W. G. BOYCE
(ex-Waterville Victory)252 LT. ROBERT CRAIG
(ex-Bowling Green Victory)

Displacement: 6,700 tons light (12,400 tons full load)
 Dimensions: 455×62×24 feet
 Machinery: Geared turbines, S.H.P.: 6,000=15.5 kts.

General

VC2-S-AP3 type. (AK-278 was authorized in Aug. 1962 for the Military Sea Transportation Service, but no contract has been awarded.)

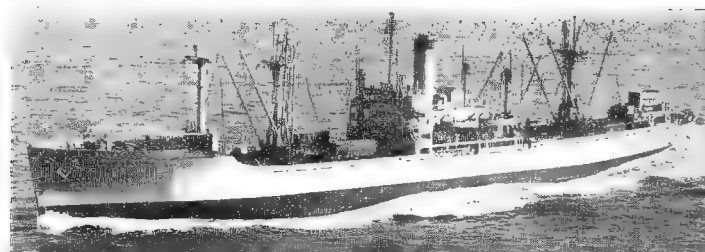
Class

Pvt. Joe E. Mann, T-AK 253, ex-Owensboro Victory, was fitted out as a range instrumentation and telemetry ship for the Pacific Missile Range in Oct. 1958 and renamed Richfield, T-AGM 4 in 1960 (see page 383). Based at Pt. Mugu, Calif., as a training and recovery ship.

Disposals

The two N-3-S-A1 type cargo ships Sagitta, T-AK 87 (ex-S.S. Moses Pike) and Vela, T-AK 89 (ex-S.S. Charles A. Roulett), stricken in July 1961 and on 3 Apr. 1959 and transferred to the Maritime Administration.

Cargo Ships—continued



GREENVILLE VICTORY

1964, Skyfotos

5 Type VC2-S-AP3

T-AK

237 GREENVILLE VICTORY

274 LIEUT. JAMES E. ROBINSON

(ex-T-AG 170, ex-T-AK 274, ex-Czecho-
slovakia Victory)

T-AK

240 PRIVATE JOHN R. TOWLE

(ex-Appleton Victory)

275 PRIVATE JOSEPH F. MERRELL

(ex-Grange Victory)

276 SERGEANT JACK J. PENDLETON

Displacement: 6,720 tons light (12,450 tons full load)
 Dimensions: 455 (o.a.)×62×24 (max.) feet
 Machinery: Turbine. S.H.P.: 8,500=16.5 to 17.7 kts.

General

Greenville Victory has been winterized. Dalton Victory and Haiti Victory, renamed Sunnyvale and Longview, respectively, see earlier page (both USNS) are specially equipped to recover satellite capsules or missiles in the Pacific Missile Range, and are fitted with a helicopter deck and hangar for two helicopters.

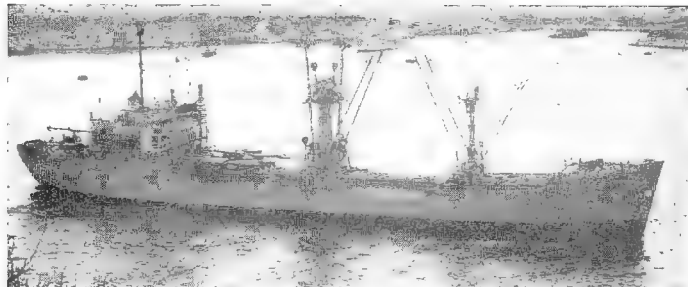
Photographs

A photograph of Lieut. James E. Robinson appears in the 1953-54 to 1959-60 editions and of Private John R. Towle in the 1959-60 to 1963-64 editions.

Reclassification

The former Military Sea Transportation Service Aircraft Cargo and Ferry Ships Lieut. James E. Robinson, Private Joseph F. Merrell and Sergeant Jack J. Pendleton, AKV 3, AKV 4 and AKV 5, respectively, were reclassified as Cargo Ships, AK 274, AK 275 and AK 276 on 7 May 1959. Kingsport Victory, T-AK 239, was renamed and reclassified Kingsport, T-AG 164 in 1962 for Project "Advent".

Lieut. James E. Robinson, T-AK 274, was to have been transferred to the Maritime Administration, but was modified for special project work and reclassified as T-AG 170 in 1963, and reverted to the original classification T-AK 274 on 1 July 1964.



SHORT SPlice

1958, A. & J. Pavla

6 Type C1-M-AV1

T-AK

246 COLONEL WILLIAM J. O'BRIEN

(ex-Maiden's Eye)

249 SHORT SPlice

250 PYT. FRANK J. PETRARCA (ex-Long Splice)

T-AK

180 FENTRESS (ex-V 206)

188 HERKIMER (ex-V 203)

198 MUSKINGUM (ex-V 208)

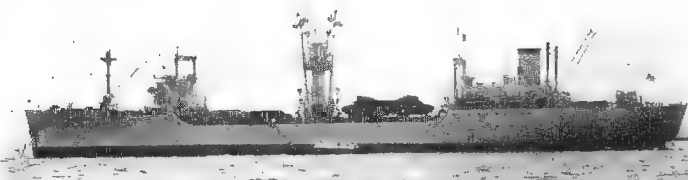
Displacement: 2,460 tons light (7,450 tons full load)
 Dimensions: 338½×50×21 feet
 Machinery: Diesel. B.H.P.: 1,750=11.5 kts.

General

Colonel William J. O'Brien and Short Splice were converted to heavy lift ships with two 80-ton cranes during Aug.-Nov. 1954.

Transfers

T-AK 200, Pembina and T-AK 245, Captain Ario L. Olsen (ex-Bell Ringer) were transferred to the Maritime Administration in 1958. Pembina, T-AK 200, and Private John F. Thorson, T-AK 247, were stricken from the Navy List in 1959. Sergeant George Peterson, T-AK 248, was transferred to the Maritime Administration by the MSTs. Pvt. Frank J. Petrarca, T-AK 250, was stricken on 9 Apr. 1959, but was reacquired by the MSTs in 1960. Hennepin, T-AK 187 (ex-V 205) and Sergeant George Peterson, T-AK 248, stricken on 27 Mar. 1959, were transferred to the Maritime Administration.



MARINE FIDDLER

1964, United States Navy, Official

2 "C 4" Heavy Lift Types

1 Type C4-S-B1

T-AK 255 PYT. LEONARD C. BROSTROM

(ex-Marine Eagle)

1 Type C4-S-B5

T-AK 267 MARINE FIDDLER

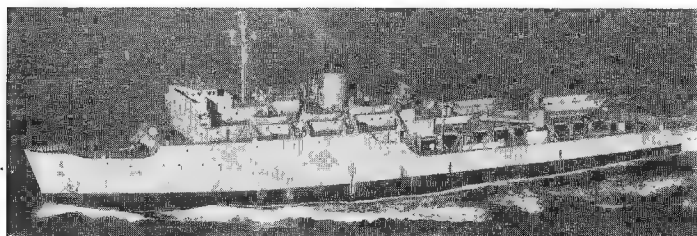
Dimensions: 520 (o.a.)×72×33 feet
 Machinery: Geared turbine, S.H.P.: 9,000=17 kts.

General

Marine Fiddler was built in 1945, and acquired from the Maritime Administration Reserve Fleet in 1952. Both were converted to heavy lift ships for carrying locomotives and general cargo in 1954.

Photographs

A photograph of Private Leonard C. Brostrom appears in the 1954-55 to 1957-58 editions.

DOCK CARGO SHIP (AKD)

POINT BARROW

1964, Skyfotos

T-AKD 1 POINT BARROW (25 May 1957)

Displacement: 5,940 tons light, 9,415 tons standard (14,094 tons full load)
 Measurement: 12,000 tons gross, 4,020 tons deadweight
 Dimensions: 462 (pp.), 475 (w.l.), 492 (o.a.)×78×22 feet
 Machinery: Turbine. 2 shafts S.H.P.: 6,000=18 kts.
 Radius: 10,000 miles cruising
 Complement: 66 plus 42 transients

General

Built for MSTs by Maryland Shipbuilding & Dry Dock Co., Laid down on 18 Sep. 1956 and commissioned on 28 Feb. 1958. Delivered to MSTs on 29 May 1958. S2-ST-23A type. Roll-on, Roll-off ship to load vehicles on ramp and have overhead gear for general cargo. Arcticised and adapted for polar exploration. Ballasting arrangement permits embarking and debarking landing craft as in Dock Landing Ships. An aerial view of the ship, showing after deck and well, appears in the 1959-60 to 1963-64 editions.

LIGHT CARGO SHIPS (AKL)**3 "Camano" Class****AKL 25 BANNER** (ex-Capt. Wm. M. Galt, ex-FS 345)**AKL 28 BRULE** (ex-FS 370)**AKL 12 MARK** (ex-FS 214, ex-AG 143)**General**

Small cargo carriers taken over from the Army. Armament: 20 mm. AKL 25 and AKL 28, were named, armed and commissioned in 1952 (ex-USNS). Sharps (AKL 10) was transferred to Korea under MDAP in 1956.

Disposals

Tingles, AKL 13, was stricken from the Navy List in 1959, Camano, AKL 1, Estero, AKL 5, Hewell, AKL 14, and Jekyl, AKL 6, in 1960; Deal, AKL 2, and Ryer, AKL 9, in July 1961 and sold in 1962.

Alcyone (ex-FS 195), Athena (ex-FS 257), Almaack (ex-FS 283), Delmos (ex-FS 390), Pamina (ex-FS 528) and Renate (ex-FS 547), same type as "Camano" class, acquired from the Army in 1952, AKL 37-42, respectively, formerly on loan to Korea but carrying U.S. names and designations, were stricken on 1 Feb. 1960.

1 Ex-CG Type**REDBUD****General**

T-AKL 398. Former U.S. Coast Guard Tender (WAGL). Launched on 11 Sep. 1943. Of "Basswood" class (see later page), transferred to Navy for special transport and supply service in Greenland, and in Feb. 1952 to Military Sea Transportation Service as multi-purpose freighter combination icebreaker, light cargo vessel and radio communications ship, USNS.

2 T-AKL Type**AKL 27** (ex-FS 369)**T-AKL 31** (ex-FS 407)**General**

Same type as "Camano" class; but unarmed. Complement 23. T-AKL 35 was transferred to the Korean Navy in 1956. T-AKL 31 is operated by MSTs. AKL 27 is in reserve.

Disposals

T-AKL 33 was stricken from the list on 26 Apr. 1958. T-AKL 24 and 34 in 1959, T-AKL 15, 16, 18, 19, 21, 23, 26 and 36 on 1 May 1959. 1 Nov. 1959 and in 1960, AKL 29 in 1960, AKL 20, 22, 30 and 32 in July 1961, T-AKL 17, New Bedford (ex-FS 289) on 26 Aug. 1963, T-AKL 43 on 1 Oct. 1943 (converting for Coast Guard).

COASTAL TRANSPORT (APC)**1 T-APC Type****T-APC 116 SERGEANT JONAH E. KELLY** (ex-Link Splice)

Displacement: 2,460 tons light (7,460 tons full load)
 Dimensions: 338½×50×21 feet
 Machinery: Diesel. B.H.P.: 1,750=11.5 kts.

General

Military Sea Transportation Service coastal transport. CI-M-AV1 Type. Private Jose F. Valdez was re-acquired from the Maritime Administration and returned to the Navy in Aug. 1961, and reclassified as T-AG 169 in 1963. She and T-AG 171 (see below and on page 407) are Special Project Ships.

Disposals

Of this type, Sergeant George D. Keathley, T-APC 117 (ex-Acorn Knot, ex-Alexander R. Niminger, Sr.), and Sergeant Joseph E. Muller, T-APC 118 (ex-Check Knot), were transferred to the Maritime Administration in 1959, but the latter was reacquired in 1962 and reclassified as T-AG 171 in 1963.

SALVAGE TENDERS (ARST)**2 Ex-LST Type****LAYSAN ISLAND** (ex-LST 1098)**PALMYRA** (ex-LST 1100)

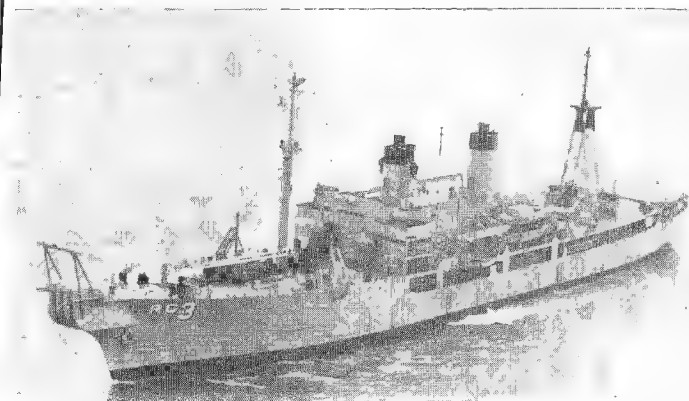
Displacement: 1,653 tons standard (4,080 tons full load)
 Dimensions: 328×50×11 feet (14½ feet max.)
 Machinery: Diesel. 2 shafts. B.H.P.: 1,800=11 kts.

General

Numbered ARST 1 and ARST 3, respectively. Former Tank Landing Ships, Out of commission, in reserve.

Photographs

A photograph of Palmyra appears in the 1949-50 to 1957-58 editions.

CABLE REPAIR SHIPS (ARC)

AEOLUS

Added 1961, United States Navy, Official

2 "Aeolus" Class**ARC 3 AEOLUS** (ex-Turandot, AKA 47)**ARC 4 THOR** (ex-Vanadis, AKA 49)

Displacement: 7,000 tons
 Dimensions: 400 (w.l.), 426 (o.a.)×58×16 feet
 Machinery: Westinghouse turbo-electric. S.H.P.: 6,000=16.9 kts.

General

Aeolus (laid up in the Maritime Administration Reserve Fleet since June 1946) was re-acquired by the Navy on 4 Nov. 1954. Both converted to Cable Laying or Repair Ships by the Key Highway Plant of Bethlehem Steel, Baltimore, Maryland. Aeolus commissioned in May 1955. Thor, built by Walsh Kaiser Company, Providence, commissioned on 3 Jan. 1956. Unarmed.

Photographs

A photograph of Thor appears in the 1957-58 to 1960-61 editions.



NEPTUNE

1954, U.S. Navy, Official

1 "Neptune" Type**ARC 2 NEPTUNE** (ex-William H. G. Bullard)

Measurement: 3,929 tons gross, 4,860 tons deadweight
 Dimensions: 322×47×33½ feet
 Machinery: Reciprocating Uniflow engines. 2 shafts. I.H.P.: 4,800=14 kts.

General

Built by Pusey and Jones Corp., Wilmington, Del. Launched in 1945. Completed in Feb. 1946. Acquired from the Maritime Administration in 1953. S3-S2-BF1 type.



YAMACRAW

1964, courtesy "Our Navy"

1 Minelayer Type**ARC 5 YAMACRAW** (ex-U.S.C.G. WARC 333, ex-ACM 9 ex-Trapper)**General**

Launched in 1943. Originally an Army minelayer and subsequently a U.S. Navy auxiliary minelayer, afterwards employed as a U.S. Coastguard cable layer. Transferred to the U.S. Navy on a loan basis as a cable repair ship in 1959. Commissioned on 30 Apr. 1959. To be disposed of in 1965.

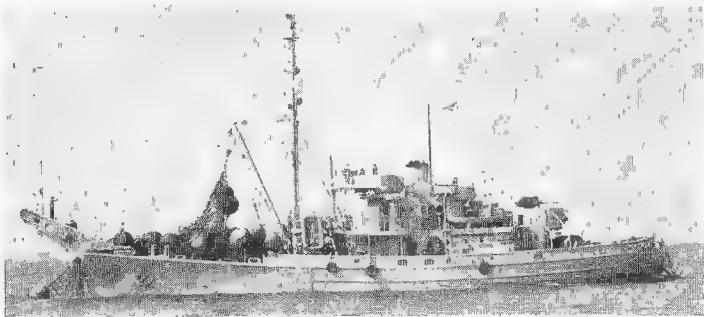
Transfer

The cable repair ship of the ex-LSM type, Portunus, ARC 1 (ex-LSM 275) was transferred to Portugal on 1 May 1959.

Disposals

The cable repair ship of the wooden type, Nashawena, YAG 35 (ex-AG 142) was stricken in 1960.

NETLAYERS (AN)



NAHANT

Added 1964, United States Navy, Official

1 "Cohoes" Class

AN 83 NAHANT

Displacement: 650 tons standard (785 tons full load)
Dimensions: 146 (w.l.), 168½ (o.a.)×33½×11½ (max.) feet
Guns: 1—3 inch
Machinery: Busch-Sulzer diesel-electric, S.H.P.: 1,200—12 kts.
Complement: 46 (4 officers, 42 men)

General

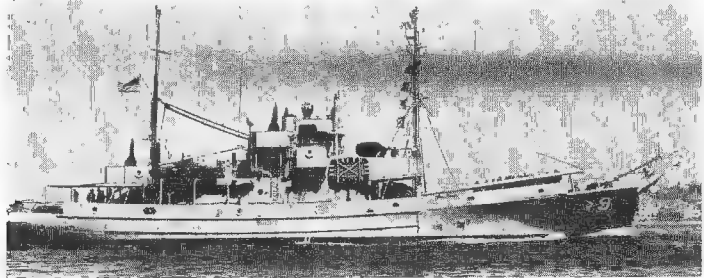
Built by Commercial Iron Works, Portland, Oregon, Laid down on 31 Mar, 1945 and launched in June 1945.

Transfers

AN 89, was transferred to Haiti in 1960, Marietta, AN 82, to Venezuela in Jan. 1961, Tunis, AN 90, and Waxsaw, AN 91 to Venezuela in 1963.

Disposals

Manayunk, AN 81, Naubuc, AN 84, Suncock, AN 80, and Tunis, AN 90, were transferred to the Maritime Administration National Defence Reserve Fleet in 1961 but stricken from the Navy List in Sep. 1962. Cohoes, AN 78, Etah, AN 79, Oneota, AN 85, Passaconaway, AN 86, Passaic, AN 87, Shakamaxon, AN 88, and Yazoo, AN 92, were stricken in July 1963 and transferred to the Maritime Administration Reserve Fleet, Suncock, AN 80, was retransferred to the Bureau of Mines in Oct. 1964.



BUTTERNUT

1964, United States Navy, Official

1 "Tree" Class

AN 9 BUTTERNUT

Displacement: 560 tons standard (805 tons full load)
Dimensions: 146 (w.l.), 163 (o.a.)×30½×11½ (max.) feet
Guns: 1—3 inch AA
Machinery: Diesel-electric, B.H.P.: 800=13 kts.
Complement: 48 (4 officers, 44 men)

General

Former YN, Steel hulls. Built by Lake Washington Shipyards, Houghton, Washington. Laid down on 11 Mar. 1941, launched on 10 May 1941 and completed on 3 Sep. 1941.

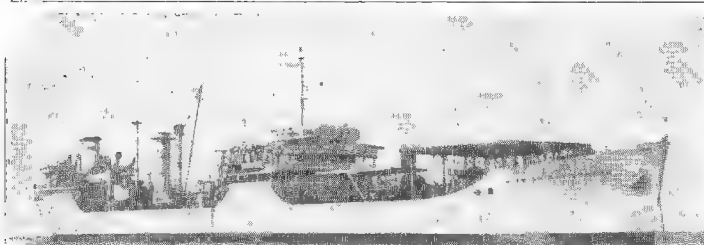
Transfers

Three of this class were transferred to France in 1944, and one to Turkey in 1947.

Disposals

Aloe, AN 6, Ash, AN 7, Boxwood, AN 8, Catalpa, AN 10, Chestnut, AN 11, Cinchona, AN 12, Ebony, AN 15, Eucalyptus, AN 16, Holly, AN 19, Elder, AN 20, Locust, AN 22, Mango, AN 24, Mimosa, AN 26, Palm, AN 28, Hazel, AN 29, Redwood, AN 30, Rosewood, AN 31, Sandalwood, AN 32, Nutmeg, AN 33, and Teak, AN 35, were transferred to the Maritime National Defence Reserve Fleet in 1961, but stricken from the Navy List in Sep. 1962. Teaberry AN 34 was stricken in 1961 and disposed of in 1962. Buckeye AN 13, Buckthorn, AN 14, and Mulberry, AN 27, were stricken in July 1963 and transferred to the Maritime Administration Reserve Fleet.

SOUND TESTING EXPERIMENTAL SHIP



MISSION CAPISTRANO

1962, courtesy Mr. W. H. Davis

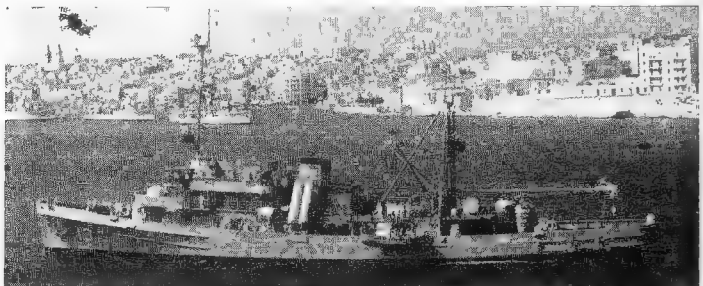
MISSION CAPISTRANO AG 162 (ex-AO 112)

Displacement: 17,000 tons
Dimensions: 523½ (o.a.)×68×30½ feet
Machinery: Turbo-electric, S.H.P.: 10,000=16 kts.
Complement: 74 civilian crew plus 52 special parties

General

This former oiler of the "T2-SE" Type (see later page) was converted by Todd Shipyards, New Orleans, into a sound testing experimental ship in connection with operations of Texas Tower Argus Island off Bermuda. Fitted with a sound transducer assembly five stories high. Used to test the huge sonar transducer in a giant new sonar system for detecting submarines at long range. The transducer can be raised and lowered as desired. Project "A-cemis".

SUBMARINE RESCUE VESSELS (ASR)



KITTIWAKE

1962, A. & J. Pavia

8 "Chanticleer" Class

ASR

- 7 CHANTICLEER (29 May 1942)
- 8 COUCAL (29 May 1942)
- 9 FLORIKAN (14 June 1942)
- 10 GREENLET (12 July 1942)

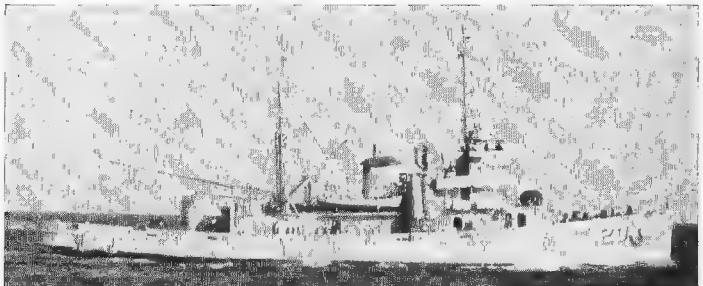
ASR

- 13 KITTIWAKE (10 July 1945)
- 14 PETREL (26 Sep. 1945)
- 15 SUNBIRD (3 Apr. 1945)
- 16 TRINGA (25 June 1945)

Displacement: 1,653 tons standard (2,141 tons full load)
Dimensions: 240 (w.l.), 251½ (o.a.)×42×14½ (max.) feet
Machinery: Diesel-electric, (Alco in first 4 ships, G.M. in others).
1 shaft, B.H.P.: 3,000—14.9 kts.
Complement: 85

General

ASR 7-10 were built by Moore S.B. & DD, Co., Oakland, Calif., and 13-16 by Savannah Machine & Foundry Co., Savannah, Ga. Launch dates above. Large tug type. All are equipped with powerful pumps, heavy air compressors and special submarine rescue chambers. Guns were removed 1957-58.



SKYLARK

1963, A. & J. Pavia

2 "Penguin" Class

ASR

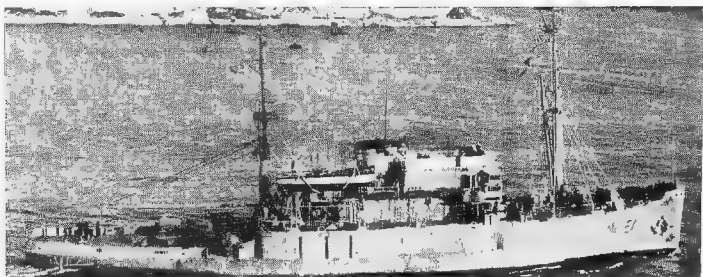
- 12 PENGUIN (ex-Chetco, 20 July 1943)
- 20 SKYLARK (ex-Yustaga, 1946)

Displacement: 1,235 tons standard (1,675 tons full load)
Dimensions: 195 (w.l.), 205 (o.a.)×38½×15½ (max.) feet
Guns: 1—3 inch, 2—40 mm. AA. (may be removed)
Machinery: Diesel-electric, B.H.P.: 3,000=16.5 kts.
Complement: 85

General

Former fleet tugs, adapted for present service in 1947. Built by Charleston S.B. & D.D. Co., Charleston, S.C. Bluebird ASR 19, was transferred to Turkey on 15 Aug. 1950. The fleet tugs Luiseno and Papago (see later page) are also fitted out as submarine rescue vessels. A photograph of Penguin appears in the 1961-62 and 1962-63 editions.

SALVAGE VESSELS (ARS)



PRESERVER

1964, A. & J. Pavia

13 "Escape" Class

ARS

- 38 BOLSTER (23 Dec. 1944)
- 39 CONSERVER (27 Jan. 1945)
- 22 CURRENT (25 Sep. 1943)
- 23 DELIVER (25 Sep. 1943)
- 6 ESCAPE (22 Nov. 1942)
- 7 GRAPPLE (31 Dec. 1942)

ARS

- 24 GRASP (31 July 1943)
- 40 HOIST (31 Mar. 1945)
- 41 OPPORTUNE (31 Mar. 1945)
- 8 PRESERVER (1 Apr. 1943)
- 42 RECLAIMER (25 June 1945)
- 43 RECOVERY (4 Aug. 1945)
- 25 SAFEGUARD (20 Nov. 1943)

Displacement: 1,530 tons standard (1,900 tons full load)
Dimensions: 207 (w.l.), 213½ (o.a.)×39 or 43×13 feet
Guns: 4—40 mm. AA.
Machinery: Diesel-electric, 2 shafts, B.H.P.: 3,000=14 kts.
Complement: 85

General

Built by Basalt Rock Co. Cable, ARS 19, Curb, ARS 21 and Gear, ARS 34, are on loan to a private operator, Clamp (ex-Atlantic Salvor), ARS 33, was stricken in July 1963 and transferred to the Maritime Administration Reserve Fleet. A photograph of Bolster appears in the 1946-47 to 1957-58 editions, and of Safeguard in the 1958-59 to 1963-64 editions.

Conversion

Chain and Snatch were converted into Oceanographic Research Ships in 1958-60. Chain, ARS 20, converted by the Savannah Machine & Foundry, was assigned to the Woods Hole Oceanographic Institute by the Office of Naval Research. Snatch, ARS 27 converted by Puget Sound Bridge and Drydock Co. was assigned to the Scripps Institute of Oceanography by the ONR. Complement of 40 plus 28 scientists. Four laboratories, and winches for specialised work. Renamed Argo.

MINESWEEPING BOATS (MSB)



MSB 8

1957, courtesy "Our Navy"

48 Shallow Draught Type

MSB	MSB	MSB	MSB	MSB	MSB	MSB	MSB
5	11	18	25	31	37	43	49
6	13	19	26	32	38	44	50
7	14	20	27	33	39	45	51
8	15	21	28	34	40	46	52
9	16	22	29	35	41	47	53
10	17	23	30	36	42	48	54

Displacement: 30 tons light (42 tons full load) except MSB 29, 81 tons full load
 Dimensions: 57½×15½×4 feet (MSB 29, 82×19×5½ feet)
 Machinery: Diesel engines. 2 shafts. B.H.P.: 600=10 kts.
 Complement: 6 to 8

General

MSB 5-54 have wooden hulls. Designed to be carried in parent ships to theatre of operations. All built in 1951 and 1952, except MSB 29, launched on 5 Oct. 1956.

Engineering

MSB 5 was the first vessel built for the U.S. Navy with gas turbine engines (used to provide the power for the boat's generators. 48 MSBs were fitted with gas turbine generators. MSB 23, destroyed by fire on 2 Feb. 1955 while under construction was rebuilt as a plastic hulled vessel and delivered in Aug. 1956. MSB 24 was never built.

Class

Class B. MSB 5-22, 25-28, 30-54; Class C: MSB 29 (see Disposals)

Disposals

Of the four ex-Army MLMs built in 1946, which constituted Class A, MSB 1 and MSB 3 were stricken on 1 Nov. 1958, and MSB 2 and MSB 4 were transferred to Korea and Taiwan China, respectively, in Dec. 1961. MSB 12 was stricken on 1 Apr. 1964.

Disposals of Radar Picket Ships

When the seaward extension of radar barriers was disestablished in 1965 all the sixteen Radar Picket Ships were decommissioned and returned to the Maritime Administration. They were stricken from the Navy List on 1 Apr. 1965 (AGR 3 Skywatcher, AGR 9 Investigator, AGR 12 Vigil); 1 July 1965 (AGR 4 Searcher, AGR 14 Interpreter); and 1 Sep. 1965 (AGR 1 Guardian; AGR 2 Lookout, AGR 5 Scanner, AGR 6 Locator; AGR 7 Picket, AGR 8 Interceptor, AGR 10 Outpost, AGR 11 Protector, AGR 13 Interdictor, AGR 15 Interrupter and AGR 16 Watchman).

DEPOT SHIPS (APB)



BENEWAH

1956, Lieut. Aldo Fraccaroli

8 "Ex-LST" Type

APB	APB	APB	APB	APB	APB	APB	APB
35 BENEWAH (ex-APL 35)	47 KINGMAN (ex-AKS 18, ex-LST 1113)	36 COLLETON (ex-APL 36)	39 MERCER (ex-APL 39)	40 NUECES (ex-APL 40)	48 VANDERBURGH (ex-AKS 19, ex-LST 114)	37 ECHOLS (ex-APL 37)	

Displacement: 2,189 tons (light), 4,080 tons full load
 Dimensions: 316 (w.l.), 328 (o.a.)×50 (extreme)×11 feet
 Guns: 40 mm. (No. of guns varies)
 Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,600 to 1,800=12 kts. (APB 41-50), 10 kts. (APB 35-40)

General

Officially rated as Self-Propelled Barrack Ships (APB). All ex-LST type ships of the same basic characteristics.

Disposals

Sister ships Accomac, APB 49, Cameron, APB 50, Presque Isle, APB 44, Wythe, APB 41, Yavapai APB 42, and Yola, APB 43, were stricken from the Navy List in 1959. Blackford, APB 45 (ex-AKS 16, ex-LST 1111) in 1960, and Marlboro, APB 38, on 1 Dec. 1963.

The barrack ship Dupage, APB 51 (ex-S.S. John R. Weeks), converted "Liberty" type merchant vessel, was stricken on 1 June 1959.

Disposals of Motor Mine Planters

YMP 1 (ex-JMP 70), former Army Junior Mine Planter was stricken in 1961 and sister ship YMP 2 (ex-Sergeant Truman O. Olson) on 1 Feb. 1960 (YMP 3 a new ship, was transferred to Turkey in 1958 under the Mutual Defence Assistance Programme.).

UTILITY LANDING CRAFT (LCU)



LCU 1624

1962, United States Navy, Official

16-2 "1610 Class" (LCU)

LCU 1610	LCU 1613	LCU 1616	LCU 1619	LCU 1622
LCU 1611	LCU 1614	LCU 1617	LCU 1620	LCU 1623
LCU 1612	LCU 1615	LCU 1618	LCU 1621	LCU 1624
				LCU 1625

Displacement:	200 tons light (342 tons full load)
Dimensions:	135½ (o.a.)×29×5½ feet
Guns:	2—20 mm AA
Machinery:	Diesels. 2 shafts. B.H.P.: 1,000=11 kts. (LCU 1620, 12 kts.). See Engineering
Complement:	12

Construction

LCU 1610-1619, authorised in the 1956 programme are longer than the older craft. LCU 1613-1619 were built by Gunderson Bros. Engineering Corp., Portland, Oregon (contract awarded May 1957) and LCU 1610-1612 by Christy Corp., Sturgeon Bay, Wisconsin. All laid down in Feb.-Dec. 1958 and launched in July 1958—Mar. 1959. Their original LST-type bow doors were changed to a ramp as in the older type. LCU 1622, authorised under the 1957 programme, had the same hull as the 1610 class but was equipped with vertical axis propellers and ramp type bow doors. Built by Weaver Shipyards, Texas, she is a steel vessel, powered by diesel engines and equipped with Kort nozzles, LCU 1623 and 1624 were built under the 1959 programme by Gunderson Bros., LCU 1620 and 1621 by Southern Shipbuilding Corporation, Slidell, Louisiana. LCU 1625, in the 1963 programme, was built by Southern Shipbuilding Corp. with cycloid propellers. Two LCU are being built under the 1965 programme.

Engineering

LCU 1621 is fitted with two right-angle drive propulsion units, port and starboard, which rotate through 360 degrees, providing thrust in any direction. The two units can be locked together or operated independently, and obviate the need for rudders and shafts. LCU 1620 has two 500 H.P. engines on vertical shafts fitted with vertical-axis cycloidal propellers (six-bladed). The LCU of the "1610" class, authorised under 1957 programme designed for a gas-turbine propulsion unit (an LCU has been fitted with a gas turbine fire pump) was not built.

2 "1608" Class (LCU)

LCU 1608	LCU 1609
Displacement:	200 tons light (375 tons full load)
Dimensions:	115×34×6 feet
Machinery:	3 diesels. B.H.P.: 495=10 kts. Kortnozzle propellers.

General

These utility landing craft of new design were authorised in the 1955 programme under development contract with the Bethlehem Steel Company, Staten Island. Laid down 25 Feb. 1957 and Mar. 1957, respectively, and completed in July 1957.

Reclassification

All LCU types were reclassified from Service Craft to "Boats" in Nov. 1958.

39 "1466" Series (ex-LCT)

LCU 1466	LCU 1473	LCU 1485	LCU 1493	LCU 1525
LCU 1467	LCU 1475	LCU 1486	LCU 1494	LCU 1535
LCU 1468	LCU 1476	LCU 1487	LCU 1495	LCU 1536
LCU 1469	LCU 1477	LCU 1488	LCU 1496	LCU 1537
LCU 1470	LCU 1481	LCU 1489	LCU 1497	LCU 1539
LCU 1471	LCU 1482	LCU 1490	LCU 1498	LCU 1547
LCU 1472	LCU 1483	LCU 1491	LCU 1499	LCU 1548
	LCU 1484	LCU 1492	LCU 1500	LCU 1559

Displacement:	180 tons light (360 tons full load)
Dimensions:	115 (w.l.), 119 (o.a.)×34×6 (max.) feet
Guns:	2—20 mm.
Machinery:	3 diesels. 3 shafts. B.H.P.: 675=10 kts.

General

Contracts announced on 2 Nov. 1951. Basically the same as Second World War LCTs. Slightly longer and wider. Chief mission is still that of putting tanks and their crews on to beaches. Designation was changed from LCT to LCU because of their many additional uses, and subsequently (1952) to LCU. Built to be transferred on LSTs and off-loaded into water from LSTs. Five units were transferred to other countries under MDAP. 1478 to Norway, 1479, 1480, 1501, 1502 to Indo-China. One (LCU 1503) was lost in Aug. 1953. LCU 1594-1607 were built as an off-shore procurement for the Military Aid Programme (OSP/MAP) See photograph of LCU 1599 (Japanese built) in the 1958-59 to 1964-65 editions.

41 LCU "501-1465" Series (ex-LCT 6)

LCU 509	LCU 660	LCU 780	LCU 1045	LCU 1394
LCU 539	LCU 666	LCU 803	LCU 1124	LCU 1385
LCU 588	LCU 667	LCU 851	LCU 1126	LCU 1387
LCU 599	LCU 674	LCU 871	LCU 1165	LCU 1388
LCU 608	LCU 709	LCU 893	LCU 1203	LCU 1430
LCU 637	LCU 716	LCU 916	LCU 1232	LCU 1451
LCU 646	LCU 742	LCU 973	LCU 1241	LCU 1459
LCU 654	LCU 768	LCU 989	LCU 1348	LCU 1462
				LCU 1463

Displacement:	143 tons to 160 tons light (309 tons to 320 tons full load)
Dimensions:	105 (w.l.), 119 (o.a.)×32½×5 (max.) feet
Guns:	2—20 mm.
Machinery:	Gray Marine diesel. 3 shafts. B.H.P.: 675=10 kts.
Complement:	13

General

41 of these LCUs are in service or reserve. 14 of these are on loan to non-Navy activities. Conversion of Nos. 1273, 1330, 1363, 1452, 1463, 1347 for Arctic service was completed in Mar. 1949. Formerly rated as Landing Ships, Tank (Small). Re-designated LSUs late 1949. Reclassified as LCUs on 15 Apr. 1952. Can carry 4 tanks or 2,000 tons of cargo. 24 have been reclassified as YFUs.

Disposals

LCU 815 was sold in May 1956, LCU 676, 1288 and 1362 were disposed of in 1957. LCU 1460 was lost at sea in 1952. LCU 569, 767, 1258, 1447, 1453 and 1454 were stricken in 1957. LCU 638, 700, 779, 1174, 1225, 1271, 1278 in 1958. LCU 1212, 1244, 1367, 1429 were transferred to foreign countries under the Military Aid Programme in 1959. LCU 1538 was sold in 1959 and LCU 1530 in 1960.

SPECIAL PROJECT SHIPS



PRIVATE JOSE F. VALDEZ 1965, United States Navy Official

2 Special Project Type

T-AG 169 (ex-T-APC 119) PRIVATE JOSE E. VALDEZ (ex-Round Splice, ex-Joe J. Martinez)
T-AG 171 (ex-T-APC 118) SERGEANT JOSEPH E. MULLER (ex-Check Knot)

Displacement: 2,460 tons light (7,460 tons full load)
Dimensions: 338½ × 50 × 21 feet
Machinery: Diesel, B.H.P.: 1,750=11.5 kts.

General

Now classed as auxiliaries, see particulars under Coastal Transports on page 406. T-AG 170 was reclassified as T-AK 274 in 1964, see page 405.



CHEYENNE 1965, United States Navy, Official

3 Forward Depot Type

T-AG 172 PHOENIX (ex-Arizona, ex-Capitol Victory)
T-AG 173 PROVO (ex-Utah, ex-Drew Victory)
T-AG 174 CHEYENNE (ex-Wyoming, ex-Middlesex Victory)

Displacement: 6,700 tons light (2,400 tons full load)
Dimensions: 455 × 62 × 21 feet
Machinery: Gear turbines, S.H.P.: 6,000=15.5 kts.

General

Forward depots in the Pacific, acquired in 1963 from the Maritime Administration. In the MSTs and designated USNS. Four more requested in 1966.

2 Survey Support Type

T-AG 175 SERGEANT CURTIS F. SHOUP

Displacement: 3,000 tons light (7,410 tons full load)
Dimensions: 339 × 50 × 21 feet
Machinery: Diesel, B.H.P.: 1,750=11.5 kts.
Complement: 49 (11 officers, 34 men, 4 survey personnel)

General

CI-M-AVI Type. Survey Support Ship. Rated as Auxiliaries (AG). Same type as T-AG 169 and T-AG 171, above.

T-AG 177 SHEARWATER (ex-FS 411)

General

Acquired from the U.S. Army, and placed in service on 1 May 1964 for remote Pacific Islands Project.

T-AG 178 FLYER (ex-S.S. American Flyer)

Displacement: 7,360 tons light (11,000 tons full load)
Dimensions: 459½ (o.a.) × 63 × 28 feet
Machinery: Turbine, S.H.P.: 6,000=17 kts.

General

Acquired from Maritime Administration on 9 Feb. 1965 for Project "Caesar", C2-S-BI type, USNS unarmed.

2 Experimental Research Type

YAG 39 GEORGE EASTMAN

YAG 40 GRANVILLE S. HALL

(ex-Iro Nelson Morris)

Displacement: 6,000 tons
Dimensions: 422½ (o.a.) × 57 × 34½ (max.) feet
Machinery: Steam reciprocating. H.P.: 2,500=11 kts. (See General)

General

Liberty ships of the EC 2-S-CI type built in 1943-44, acquired by the Navy in 1952-53 as Experimental Minefield Sweepers. Several have been used as guinea-pig ships in sweeping minefields. Remote engine room controls on bridge. Replaced in service in 1962. Assigned their former merchant ship names as Navy names in 1963. Now used as special project and research ships. The experimental minefield sweeper YAG 37 (ex-John L. Sullivan) was scrapped in 1958. YAG 36 (ex-Floyd W. Spencer) and YAG 38 (ex-Edward Kavanagh) were stricken in 1960. The Fleet X-ray examination ship Whidbey, AG 141, was stricken on 1 May 1959.

YACHTS

SEQUOIA, AG 23

Displacement: 110 tons light
Dimensions: 105 × 21 × 5 feet
Machinery: 1 diesel, B.H.P.: 400

General

Built in 1925 by J. H. Mathis Co. Used as flagship of the Secretary of the Navy. There are three other Navy yachts:—FREEDOM (IX 43), SALUDA (IX 87), ROYONO (IX 235). Highland Light (IX 48), was stricken on 1 Apr. 1965.

PETROL CARRIERS (AOG)



CHATTAHOOCHEE 1960, courtesy Mr. W. H. Davis

2 "Alatna" Class

T-AOG 81 ALATNA (6 Sep. 1956) T-AOG 82 CHATTAHOOCHEE (4 Dec. 1956)

Displacement: 5,720 tons
Measurement: 3,200 tons gross, 3,445 tons deadweight
Capacity: 2,730 tons liquid cargo=30,000 barrels
Dimensions: 285½ (pp.), 302 (o.a.) × 61 × 19 feet
Machinery: Diesel-electric, 2 shafts. H.P.: 3,400=12 kts.

General

T1-MET-24a type. Built for MSTs by Bethlehem Steel, Staten Island, N.Y. Laid down on 16 Mar. 1956 and 1 May 1956, respectively. Delivered in June and August 1957. Both have bows strengthened for navigation in ice, and are equipped with a helicopter flight deck.



PETALUMA 1964, United States Navy, Official

3 "Peconic" Class

T-AOG 79 PETALUMA (ex-Raccoon Bend) USNS
80 PISCATAQUA (ex-Cisne) USNS

T-AOG 77 RINCON USNS

Displacement: 2,060 tons light (6,000 tons full load)
Dimensions: 325 (o.a.) × 48 × 19 (max.) feet
Machinery: Diesel, 1 shaft, B.H.P.: 1,400=10 kts
Capacity: 30,000 barrels
Merchant crew: 33

General

T1-M-BT2 design. Assigned to MSTs and are non-commissioned naval vessels. USNS, unarmed. All built by Todd, Houston.

Photographs

A photograph of Tontl appears in the 1957-58 to 1963-64 editions.

Disposals

Nodaway, AOG 78 (ex-Belridge) and Peconic, AOG 68, of this class were transferred to the Maritime Administration in 1960, and Tontl, AOG 76, in 1961.



CHEWAUCAN 1965, Dr. Giorgio Arra

7 "Patapsco" Class

AOG 50 CHEWAUCAN (22 July 1944) AOG 55 NESPELEN (10 Apr. 1945)
7 ELKHORN (15 May 1943) 58 PINNEBOG (12 May 1945) (USAF)
8 GENESEE (23 Sep. 1943) 11 TOMBIGBEE (18 Nov. 1943)
52 MATTABESSET (11 Nov. 1944)

Displacement: 1,850 tons light (4,335 tons full load)
Dimensions: 292 (w.l.), 310½ (o.a.) × 48½ × 15½ (max.) feet
Guns: 3—3 inch d.p., 30 cal.
Machinery: Diesel-electric, 2 shafts. B.H.P.: 3,300=14 kts.
Complement: 124

General

Launch dates above. Navy designed. All built by Cargill Inc., Savage, Minnesota. Seven of these ships were assigned to Military Sea Transportation Service designated USNS, unarmed.

Photographs

A photograph of Pecatonica appears in the 1953-54 to 1957-58 editions, and of Mattabeset in the 1962-63 to 1964-65 editions.

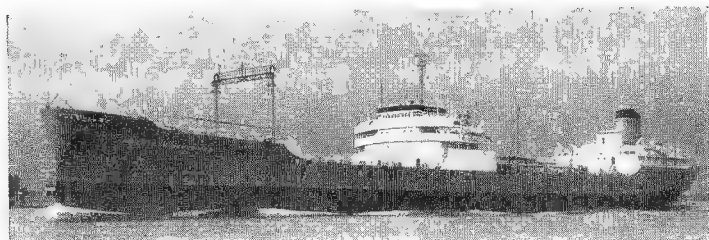
Disposals

Maquoketa, T-AOG 51, was stricken, Kern, AOG 2, Wabash, AOG 4, and Maquoketa AOG 51, were transferred to Maritime Administration in 1958 and Susquehanna, AOG 5, in 1959-60. Ontonagon, AOG 36 was stricken from the Navy List and returned to Maritime Administration on 13 Nov. 1957. Agawam, AOG 6, Kishwaukee, AOG 9, Nemasket, AOG 10, Noxubee, AOG 56, Patapsco, AOG 1, and Rio Grande, AOG 3 were disposed of in 1961. Chistotee, AOG 49, and Wacissa, AOG 59, were stricken in 1963 and scrapped.

Transfers

Natchaug, AOG 54 was transferred to Greece under the MDAP on 1 Aug. 1959. Pinnebog is on loan to the U.S. Air Force. Pecatonica, AOG 57, was transferred to Taiwan China in Apr. 1961. Namakagon, AOG 53, was loaned to New Zealand in 1963.

FLEET OILERS (AO)



AMERICAN EXPLORER
T-AO 165 AMERICAN EXPLORER
Measurement: 16,500 tons gross, 22,525 tons deadweight
Dimensions: 615 (o.a.) \times 80 \times 44 $\frac{1}{2}$ feet
Machinery: Steam turbines. S.H.P.: 22,000=20 kts.

General

T5-S-RM2a type. Laid down on 9 July 1957. Launched on 11 Apr. 1958. Built by Ingalls Shipbuilding Corporation, Pascagoula, for the Maritime Administration, but acquired by MSTs. Rated as U.S. Naval Ship with civil service crew.



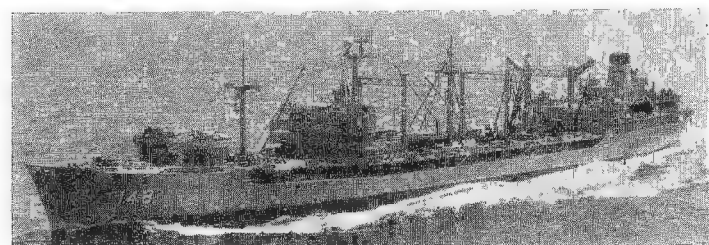
SHOSHONE
1964, United States Navy, Official

3 "Maumee" Class
T-AO 149 MAUMEE (16 Feb. 1956)
T-AO 151 SHOSHONE (17 Jan. 1957)
T-AO 152 YUKON (16 Mar. 1956)

Displacement: 7,950 tons light
Measurement: 16,500 tons gross, 25,000 tons deadweight
Dimensions: 591 (w.l.), 620 (o.a.) \times 83 $\frac{1}{2}$ \times 32 feet
Machinery: Turbine. S.H.P.: 20,460=18 kts.

General

Yukon, laid down 16 May 1955, by Ingalls, Pascagoula, delivered May 1957. Maumee laid down 8 Mar. 1955, delivered Dec. 1956. Shoshone laid down 15 Aug. 1955 by Sun Shipbuilding, Chester, delivered Apr. 1957. T5-S-12A type. Potomac, T-AO 150, sank at Morehead, N.C., after explosion on 26-27 Sep. 1961, but was rebuilt in 1963-64 and renamed S.S. Shenandoah, chartered to MSTs. A photograph of Maumee appears in the 1962-63 and 1963-64 editions.



PONCHATOULA
1964, United States Navy, Official

6 Large Type

AO
143 NEOSHO (10 Nov. 1953)
144 MISSISSINNEWA (12 June 1954)
145 HASSAYAMPA (12 Sep. 1954)
Displacement: 11,600 tons light (38,000 to 40,000 tons full load)
Dimensions: 640 (w.l.), 655 (o.a.) \times 86 \times 35 (max.) feet
Guns: 12—3 inch, 50 cal. (6 twin)
Machinery: G.E. Turbines. 2 shafts. S.H.P.: 28,000=20 kts.
Complement: 300 (fitted to carry squadron staffs of 12 officers)

General

First, AO 143, built by Bethlehem Steel Company, Quincy, Mass. AO 144-148 by New York Shipbuilding Corporation, Camden, New Jersey. Mississinewa commissioned 18 Jan. 1955. Launch dates above. Truckee laid down 21 Dec. 1953. Ponchatoula 1 Mar. 1954. Largest Navy oilers built. Carry 180,000 barrels in 24 tanks. The 2—5 inch, 38 cal. guns were removed in 1960 and a helicopter platform laid on in place of the after 5 inch gun. A photograph of Neosho appears in the 1955-56 to 1959-60 editions, and of Truckee in the 1960-61 to 1963-64 editions.



PAWCATUCK
1962, Stefan Terzibaschitsch

5 "T3-S2-A3" Type (Jumboised)

AO
105 MISPELLION (10 Aug. 1945)
106 NAVASOTA (30 Aug. 1945)
Displacement: 11,000 tons light, (34,750 tons full load)
Dimensions: 646 (o.a.) \times 75 \times 35 $\frac{1}{2}$ feet
Guns: 4—3 inch, 50 cal. AA. (single)
Machinery: Turbines. 2 shafts. S.H.P.: 13,500=18 kts.
Boilers: 4
Complement: 290 (16 officers, 274 men)

General

Navasota and Waccamaw, jumboised under the 1963 programme, (recommissioned on 28 Dec. 1964 and 26 Feb. 1965), other three under the 1964 programme. Conversion increased the oil cargo capacity from 100,000 to 150,000 barrels.

Fleet Oilers—continued



MISSION SAN FERNANDO
16 "T2-SE" Type
1953, Skyfotos

CACHE (ex-Stillwater 1942)
CHEPACHET (ex-Eutaw Springs, 1943)
COSSATOT (ex-Fort Hecessity, 1942)
COWANESQUE (ex-Fort Duquesne, 1942)
MISSION BUENAVENTURA
MILLICOMA (ex-Connstego, 21 Jan. 1943)
MISSION SAN RAFAEL
MISSION SANTA CRUZ
MISSION SANTA YNEZ
PECOS (ex-Corsicana, 1942)
PIONEER VALLEY
SAUGATUCK (ex-Newton, 1942)
SCHUYLKILL (ex-Louisburg, 16 Feb. 1943)
SHAWNEE TRAIL
SUAMICO (ex-Harlem Heights 1941)
TALLUAH (ex-Valley Forge, 1944)
Displacement: 5,730 tons light (22,380 tons full load)
Dimensions: 503 (w.l.), 523 $\frac{1}{2}$ (o.a.) \times 68 \times 31 (max.) feet
Machinery: A 1 type Turbo-electric. S.H.P.: 6,000=15 kts.
A 2 type S.H.P.: 10,000=16 kts.
Boilers: 2 Babcock & Wilcox

General

T2-S E-A1 and T2-S E-A2 design. All assigned to Military Sea Transportation Service with the prefix U.S.N.S. (U.S. Naval Ship). Civilian manned, Navy-owned tankers, operated by commercial shipping firms under contract to the Navy. Several are equipped with an aluminum portable aircraft cargo deck. Many were returned to Maritime Administration reserve fleets in 1957-60. Mission San Francisco, AO 123, was stricken as a result of the collision in Delaware River in Mar. 1957. Mission San Miguel was abandoned after grounding on Maro Reef, Hawaii on 8 Oct. 1957. Mission Buenaventura, Mission San Antonio, Mission San Rafael, Mission Santa Cruz and Pioneer Valley reacquired from the Maritime Administration and returned to the Navy in 1961-62 for MSTs. Tomahawk was transferred to the National Defence Reserve Fleet in 1961. Mission Santa Clara, T-AO 132, was loaned to Pakistan in Jan 1963. Shawnee Trail, T-AO 142, was reacquired from Maritime Administration on 20 Jan. 1965 to replace Mission San Antonio which was stricken.

Conversion

Mission Capistrano, AO 112, converted into AG 162, a sound testing experimental ship (see earlier page). Two T-2 type are to be lengthened to 585 (\times 80) feet under the F.Y. 1965 conversion programme.



ELOKOMIN
1962, courtesy E. Woods, Esq.

24 "T3-S2-A1" Type

ALLAGASH (14 Apr. 1945)
ASHTABULA (22 May 1943)
AUCILLA (ex-Escanaba, 20 Nov. 1943)
CACAPON (6 June 1943)
CALIENTE (26 Aug. 1943)
CALOOSAHATCHEE (2 June 1945)
CANISTEO (6 July 1945)
CHEMUNG (ex-Esso Annapolis, 9 Sep. 1939)
CHIKASKIA (2 Oct. 1943)
CHIPOLA (21 Oct. 1944)
CHUKAWAN (28 Aug. 1945)
CIMARRON (7 Jan. 1939)
ELOKOMIN (19 Oct. 1943)
GUADALUPE (ex-Esso Raleigh, 26 Jan. 1940)
KASKASKIA (ex-Esso Richmond, 29 Sep. 1939)
MANATEE (19 Feb. 1944)
MARIAS (21 Dec. 1943)
NANTAHALA (1943)
PLATTE (8 July 1939)
SABINE (ex-Esso Albany, 27 Apr. 1940)
SALAMONIE (ex-Esso Columbia, 18 Sep. 1940)
SEVERN (31 May 1944)
TALUGA (10 July 1944)
TOLOYANA (6 Jan. 1945)

Displacement: 25,525 tons full load. Jumboised ships 34,700 tons full load
Dimensions: 553 or 644 (o.a.) \times 75 \times 31 $\frac{1}{2}$ feet
Guns: 1—5 inch, 4—3 inch (Chemung, Guadalupe, Kaskaskia, Sabine, Cimarron, Platte, Salomonie, 3—5 inch; Cacapon, 4—3 inch, 50 cal., Chipola, 2—3 inch, 50 cal.). 8—3 inch (4 twin) in Jumbos
Machinery: Geared turbines. 2 shafts. S.H.P.: 13,500=18 kts.
Boilers: 4 Foster-Wheeler (Cimarron, 4 Babcock & Wilcox)
Cargo capacity: Exceeds 6,000,000 gallons
Complement: 64

General

AO 97, 51, 56, 52, 53, 98, 99, 30, 54, 63, 100, 22, 55, 32, 27, 58, 57, 60, 24, 25, 26, 61, 62, 64, respectively. War losses: Mississinewa, Neosho, Chikaskia and Chipola recommissioned from the Maritime Reserve Fleet in 1960, and Kaskaskia and Sabine in 1961. Nine of this class are being modernised and "Jumboised" under recent conversion programmes and re-armed with 8—3 inch, 50 cal. guns in 4 twin mounts, two forward and two aft. A new central tank section will increase the length to 644 feet and the displacement to 34,700 tons.

4 "T2-A" Type

KANKAKEE (ex-Colina, 1941)
KENNEBEC (ex-Corsicana, 1940)
Displacement: 6,013 tons light (21,580 tons full load)
Dimensions: 502 (o.a.) \times 68 \times 30 $\frac{1}{2}$ (max.) feet
Guns: 8—40 mm. AA.
Machinery: Turbine. 1 shaft. S.H.P.: 12,000=16.7 kts.
Boilers: 2 Babcock & Wilcox
MATTAPONI (ex-Kaikay, 1942)
NECHES (ex-Askal, 1941)
Displacement: 6,013 tons light (21,580 tons full load)
Dimensions: 502 (o.a.) \times 68 \times 30 $\frac{1}{2}$ (max.) feet
Guns: 8—40 mm. AA.
Machinery: Turbine. 1 shaft. S.H.P.: 12,000=16.7 kts.
Boilers: 2 Babcock & Wilcox

General

AO 39, 36, 41 and 47 respectively. Reacquired, returned to Navy and recommissioned in 1961. A photograph of Kennebec appears in the 1949-50 to 1957-58 editions, and of Mattaponi in the 1957-58 to 1960-61 editions.

Disposals

Both oilers of the "T3-S-A1" type, Enoree, AO 69, and Niobrara, AO 72, were stricken from the Navy List in Dec. 1958.

Three oilers of the "T2-A" type, Merrimack, AO 37, Monaghela, AO 42, and Tappahannock, AO 43, were stricken from the Navy List in Dec. 1958.

The ex-German fleet replenishment ship Conecuh, AO 110 (ex-Dithmarchen, IX301) was stricken in 1960.

Of the two distilling ships, ex-oilers, of the "Pasig" class, Abatan, AW 4 (ex-Mission San Lorenzo, AO 92, and Pasig, AW 3 (ex-Mission San Xavier, AO 91) were transferred to the Maritime National Defence Reserve Fleet in 1960-61, but Abatan was reacquired in Sep. 1962 and returned to Maritime Administration custody in Nov. 1962, (now at Guantanamo Bay, Cuba, with only the distilling plant activated).

ICEBREAKERS (AGB)



GLACIER

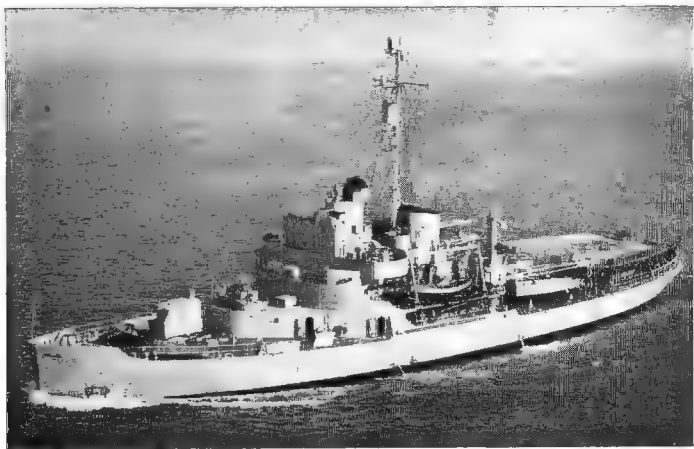
1962, United States Navy, Official

AGB 4 GLACIER

Displacement: 5,100 tons light (8,775 tons full load)
 Dimensions: 310×74×29 feet
 Aircraft: 2 Helicopters
 Guns: 2—5 inch 38 cal. twin mount; 6—3 inch, 50 cal. in enclosed twin mounts.
 Machinery: 10 Fairbanks-Morse diesels and 2 Westinghouse 10,500 H.P. electric motors, 2 shafts. S.H.P.: 16,900=16 kts.
 Complement: 339 (19 officers, 320 men)

General

Designed and built by Ingalls Shipbuilding Corporation, Pascagoula, Mississippi. Laid down on 3 Aug. 1953, launched on 27 Aug. 1954 and commissioned on 27 May 1955. Designed for breaking ice more than 20 feet thick. Her bow is heavily armored for driving the ship on top of the ice field and crushing it by sheer weight. Helicopters are carried to spot the best course through the ice. Largest and highest powered American icebreaker yet built. Has largest capacity single-armature D.C. motors ever built and installed in a ship. Carries an LCVF in addition to five boats and rafts for entire ship's company. Thick double hull. Cruising speed is 12 knots.



BURTON ISLAND

Added 1958, Ted Stone

ATKA (ex-Southwind)

BURTON ISLAND

Displacement: 3,500 tons light (6,500 tons full load)
 Dimensions: 250 (p.p.), 269 (o.a.)×63½×29 (max.) feet
 Guns: 1—5 inch, 38 cal. (see General)
 Machinery: 6 diesel-electric, 2 shafts. S.H.P.: 13,300=16 kts.
 Complement: 234

General

All built by the Western Pipe & Steel Co., San Pedro, California. Entirely welded construction, with double hull. The hull is 1½ inches thick. Forward shaft removed. Helicopter aft. The four 40 mm. AA. guns were removed in 1961. Edisto was transferred to the Coast Guard on 20 Oct. 1965, and the other four Navy icebreakers will be on 1 Feb. 1966 (Staten Island), 30 June 1966 (Glacier), 20 Oct. 1966 (Atka) and 1 Nov. 1966 (Burton Island).

No.	Ex-No.	Name	Launched	Completed
AGB 3	WAGB 280	Atka	8 Mar. 1943	15 July 1944
AGB 1	AG 88	Burton Island	30 Apr. 1946	28 Dec. 1946
AGB 5	WAGB 278	Staten Island	28 Dec. 1942	15 Feb. 1944

AUXILIARY OCEAN TUGS (ATA)

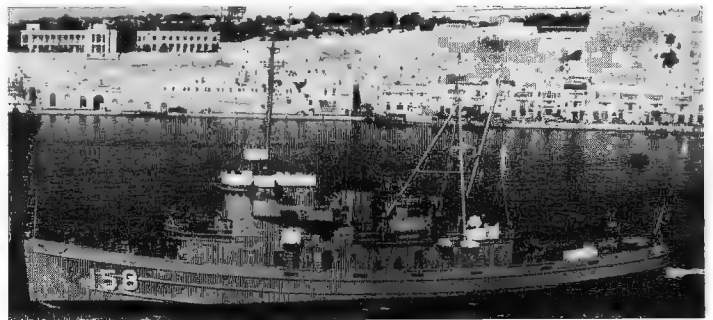
ACCOKEEK (ATA 181)
 ALLEGHENY (ATA 179)
 CAHOKIA (ATA 186)
 CATAWBA (ATA 210)
 KALMIA (ATA 184)
 KEYWADIN (ATA 213)

Displacement: 534 tons standard (835 tons full load)
 Dimensions: 134½ (w.l.), 143 (o.a.)×33½×13 feet
 Guns: 1—3 inch, 50 cal. dual purpose
 Machinery: 2 G.M. diesel-electric, 1 shaft. B.H.P.: 1,500=13 kts.
 Complement: 45 (5 officers, 40 men)

General

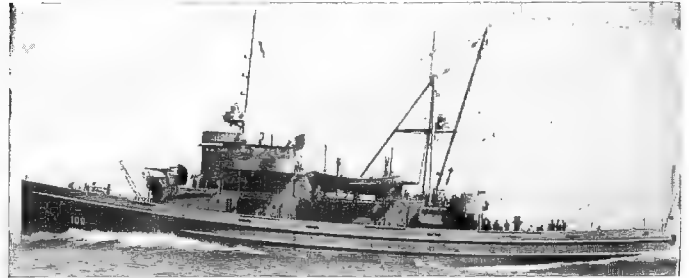
Ex-ATRs (Ocean Rescue Tugs). All launched 'n 1943-45. Bagaduce was transferred to the U.S. Coast Guard in 1959, and Wampanoag 'n 1959. Algoma, ATA 212, Challenge, ATA 201, Geronimo, ATA 207, Iuka, ATA 123, Navajo, ATA 211, Navigator, ATA 203, Nottoway, ATA 183, Reindeer, ATA 189, Sciota, ATA 205, Sonoma, ATA 175, Tunica, ATA 178, Tuscarora, ATA 245, (ex-YTB 341), Unadilla, ATA 182, and Undaunted, ATA 199, to the Maritime Administration National Defence Reserve Fleet 'n 1962. Wateree, ATA 174, to Peru in Nov. 1961. Keosauqua, ATA 198, and Pinola, ATA 206 to Korea on 1 Feb. 1962. Tankawa, ATA 176, to Taiwan China on 5 Apr. 1962. Geronimo, ATA 207, to U.S. Fish and Wild Life Service, Sotoyomo, ATA 121, to Mexico in July 1963. Undaunted, ATA 199, to Bureau of Commercial Fisheries in July 1964.

FLEET OCEAN TUGS (ATF)



MOSOPELEA (earlier funnel type)

1965, A. & J. Pavla



MOLALA (later no funnel type)

Added 1950, U.S. Navy, Official

30 "Apache" Class

ABNAKI (22 Apr. 1943) ATF 96
 APACHE (8 May 1942) ATF 67
 ARIKARA (22 June 1943) ATF 98
 ATAKAPA (11 July 1944) ATF 149
 CHICKASAW (23 July 1942) ATF 83
 CHOWANOC (20 Aug. 1943) ATF 100
 COCOPA (5 Oct. 1943) ATF 101
 CREE (17 Aug. 1942) ATF 84
 HITCHITI (29 Jan. 1944) ATF 103
 KIOWA (5 Nov. 1942) ATF 72
 LIPAN (17 Sep. 1942) ATF 85
 LUISENO (17 Mar. 1945) ATF 156
 MATACO (14 Oct. 1942) ATF 86
 MOCTOBI (25 Mar. 1944) ATF 105
 MOLALA (23 Dec. 1942) ATF 106
 MOSOSPELEA (7 Mar. 1945) ATF 158
 MUNSEE (21 Jan. 1943) ATF 107
 NIPMUC (12 Apr. 1945) ATF 157
 PAIUTE (4 June 1945) ATF 159
 PAPAGO (21 June 1945) ATF 160
 QUAPAW (15 May 1943) ATF 110
 SALINAN (20 July 1945) ATF 161
 SENECA (2 Feb. 1943) ATF 91
 SHAKORI (9 Aug. 1954) ATF 162
 SIOUX (27 May 1942) ATF 75
 TAKELMA (18 Sep. 1943) ATF 113
 TAWAKONI (28 Oct. 1943) ATF 114
 TAWASA (22 Feb. 1943) ATF 92
 UTE (24 June 1942) ATF 76
 UTINA (31 Aug. 1945) ATF 163

Displacement: 1,235 tons standard (1,675 tons full load)
 Dimensions: 195 (w.l.), 205 (o.a.)×38½×15½ (max.) feet
 Guns: 1—3 inch
 Machinery: 4 diesels, electric drive. B.H.P.: 3,000=16½ kts.
 Complement: 85

General

Launch dates above. Fitted with powerful pumps and other salvage equipment. Wateree (ATF 117) lost. Sarsi (ATF 111) sank after striking a mine off Korea, 27 Aug. 1952. A photograph of Sioux appears in the 1950-51 to 1957-58 editions and of Luiseno in the 1958-59 to 1964-65 edition. Chickasaw, ATF 83, decommissioned in 1965.

Achomawi, ATF 148, Alsea, ATF 97, Pawnee, ATF 74, Tenino, ATF 115, and Wenatchee, ATF 118, were stricken and transferred to the Maritime Administration National Defence Reserve Fleet in 1961, and Carib, ATF 82, Chawasha, ATF 181, Chimariko, ATF 154, Hidatsa, ATF 102, Hopi, ATF 71, Ilcarilla, ATF 104, and Pakana, ATF 108, in July 1963.

Avoyel and Chilula were transferred on loan to the U.S. Coast Guard in 1956. Luiseno and Papago are fitted out as submarine rescue vessels (see earlier page). Serrano, ATF 112, was reclassified as a surveying ship, AGS 24, on 15 June 1960. Yuma, ATF 94, was transferred to Pakistan on 25 Mar. 1959, and Tekesta, ATF 93 was loaned to Chile in 1960 for five years. Cusabo, ATF 155, was loaned to Ecuador in 1960 for five years. Choctaw, ATF 70, was transferred to Columbia in 1961. Menominee, ATF 73 to Indonesia in 1961. Pinto, ATF 90 to Peru in 1961. Arabahoe, ATF 68, and Cahullo, ATF 152, to Argentina in 1961. Tolowa, ATF 116, to Venezuela in Feb. 1962. Potawatomi, ATF 109, to Chile in 1963. Bannock ATF 81, to Italy in 1963.

I New Construction Salvage Tug, ATS

General

Prototype salvage tug in the 1966 new construction programme. To cost \$10,400,000

ATA 240 (ex-U.S. Army LT 455)

Displacement: 534 tons standard (835 tons full load)
 Machinery: 143 (o.a.)×33½×13½ (max.) feet
 Machinery: Diesel-electric. B.H.P.: 1,500=13 kts

General

T-ATA 239 (ex-LT 532) was returned to U.S. Army. T-ATA 244 (ex-LT 156) was stricken on 1 Nov. 1959. T-ATA 241 (ex-LT 60), T-ATA 242 (ex-LT 132) and T-ATA 243 (ex-LT 646) were transferred to the Maritime Administration in 1962 and stricken from the Navy List. ATA 240 is in reserve.

Large Harbour Tugs (YTB)

20 "Edenshaw" Class

Displacement: 400 tons
 Dimensions: 108×28 feet
 Machinery: Diesel. S.H.P.: 1,800=14 kts. Controllable pitch propellers

General

Built by Christy Corp., Sturgeon Bay, Wis. Steel hulled. Nos. YTB 752, 753, 756 to 773. YTB 752 (named Edenshaw) was completed in 1960. YTB 753 (named Marin) was launched on 22 Apr. 1960.

YTB 756-759, Bogalusa, Puducan, Pontiac, and Oshkash completed in 1961, are of 356 tons and 103 feet (o.a.). Another YTB of 265 tons in the Fiscal Year 1960 programme, YTB 760, 761, 762 in 1961 Programme, YTB 763-766 in the 1962 Programme, YTB 767-773 in 1963 programme, 774-781 in 1964 programme, YTB 782-789 in 1965 program. Total in service 37 (YTB 287-781). The "Mascoutan" class, 205 tons, 85 ft. length, have two vertical axis controllable pitch propellers.

General

There are 140 large harbour tugs, YTM 128-759, from 91 feet in length.

General

Small Harbour Tugs

There are 42 Small Harbour Tugs. 422-756, ranging from 66 to 83 feet.

List of classifications of naval vessels and service craft

Every vessel in the Navy List has a distinctive serial number, prefaced by letters denoting the category to which she belongs.
A list of these symbols, with their significance, as officially promulgated, follows :

In the following lists the arrangement within the major categories and sub-categories is alphabetically by symbols.
Where the identifying classification and hull

number of a naval vessel or service vessel is preceded by the letter "E" it indicates that the particular vessel or craft is "Experimental." Similarly the prefix "T" indicates

that the vessel is assigned to MSTs (Military Sea Transportation Service).
The addition of the suffix "N" to the identifying classification indicates that that particular vessel has nuclear propulsion.

List of Naval Vessel Classifications

a. Combatant

(1) Warships

Aircraft Carriers:

Attack Aircraft Carrier CVA
Nuclear Power Aircraft Carrier CVAN
ASW Support Aircraft Carrier CVS

Battleships:

Battleship BB

Cruisers:

Heavy Cruiser CA
Guided Missile Heavy Cruiser CAG
Guided Missile Cruiser CG
Nuclear Power Guided Missile Cruiser CGN
Light Cruiser CL
Anti-Aircraft Light Cruiser CLAA
Guided Missile Light Cruiser CLG

Destroyers:

Destroyer DD
Nuclear Power Destroyer DDN
Guided Missile Destroyer DDG
Radar Picket Destroyer DDR
Frigate DL
Guided Missile Frigate DLG
Nuclear Power Guided Missile Frigate DLGN

Submarines:

Submarine SS
Fleet Ballistic Missile Submarine SSB
Nuclear Power Fleet Ballistic Missile Submarine SSBN
Guided Missile Submarine SSG
Nuclear Power Guided Missile Submarine SSGN
Nuclear Power Submarine SSN

(2) Amphibious Warfare Ships

Amphibious Force Flagship AGC
Attack Cargo Ship AKA
Attack Transport APA
High Speed Transport APD
Transport Submarine APSS
Inshore Fire Support Ship IFS
Amphibious Transport Dock LPD
Amphibious Assault Ship LPH
Dock Landing Ship LSD
Medium Landing Ship LSM
Medium Landing Ship (Rocket) LSMR
Support Landing Ship (Large) LSSL
Tank Landing Ship LST
Vehicle Cargo Ship LSV

(3) Mine Warfare Ships

Minelayer, Destroyer DM
Mine Countermeasures Support Ship MCS
Minehunter, Auxiliary MHA
Minehunter, Coastal MHC
Minelayer, Fleet MMF
Minelayer, Auxiliary MMA
Minelayer, Coastal MMC
Minesweeper, Auxiliary MSA
Minesweeper, Coastal MSC
Minesweeper, Coastal (old) MSC(O)
Minesweeper, Fleet (steel hulled) MSF
Minesweeper, Ocean (Non-magnetic) MSO
Minesweeper, Special MSS

(4) Patrol Ships

Escort Ship DE
Guided Missile Escort Ship DEG
Radar Picket Escort Ship DER
Submarine Chaser (173') PC
Escort (180') PCE
Rescue Escort (180') PCER
Submarine Chaser (Hydrofoil) PCH
Submarine Chaser (136') PCS
Patrol Escort PF
Hydrofoil Gunboat PGH
Motor Gunboat PGM
Fast Patrol Boat PTF
Submarine Chaser (110') SC

(5) Command Ships

Command Ship CC

b. Auxiliary Ships

Destroyer Tender AD
Degaussing Ship ADG
Ammunition Ship AE
Store Ship AF
Combat Store Ship AFS
Miscellaneous AG
Icebreaker AGB
Escort Research Ship AGDE
Hydrofoil Research Ship AGEH
Missile Range Instrumentation Ship AGM
Major Communications Relay Ship AGMR
Oceanographic Research Ship AGOR
Radar Picket Ship AGR
Surveying Ship AGS
Coastal Surveying Ship AGSC
Satellite Launching Ship AGSL
Auxiliary Submarine AGSS
Technical Research Ship AGTR
Hospital Ship AH
Cargo Ship AK
Cargo Ship, Dock AKD
Light Cargo Ship AKL
Net Cargo Ship AKN
Stores Issue Ship AKS
Cargo Ship and Aircraft Ferry AKV
Net Laying Ship AN
Oiler AO
Fast Combat Support Ship AOE
Gasoline Tanker AOG
Replenishment Oiler AOR
Submarine Oiler AOSS
Transport AP
Self-propelled Barracks Ship APB
Small Coastal Transport APC
Repair Ship AR
Battle Damage Repair Ship ARB
Cable Repairing or Laying Ship ARC
Internal Combustion Engine Repair Ship ARG
Landing Craft Repair Ship ARL
Salvage Ship ARS
Salvage Lifting Ship ARSD

Salvage Craft Tender ARST
Aircraft Repair Ship ARV
Aircraft Repair Ship (Aircraft) ARVA
Aircraft Repair Ship (Engine) ARVE
Aeronautical Maintenance Ship ARVH
Submarine Tender AS
Submarine Rescue Ship ASR
Auxiliary Ocean Tug ATA
Fleet Ocean Tug ATF
Salvage Tug ATS
Seaplane Tender AV
Advance Aviation Base Ship AVB
Guided Missile Ship AVM
Small Seaplane Tender AVP
Aviation Supply Ship AVS
Auxiliary Aircraft Transport AVT
Distilling Ship AVY
Unclassified Miscellaneous IX

(c) Service Craft

Large Auxiliary Floating Dry Dock AFDB
Small Auxiliary Floating Dry Dock AFDL
Medium Auxiliary Floating Dry Dock AFDM
Barracks Ship (non-self-propelled) APL
Auxiliary Repair Dry Dock ARD
Medium Auxiliary Repair Dry Dock ARDM
Utility Landing Craft (see footnote) LCU
Mine Sweeping Boat MSB
Minesweeper, Inshore MSI
Target and Training Submarine SST
Submersible Craft X
Miscellaneous Auxiliary YAG
Open Lighter YC
Car Float YCF
Aircraft Transportation Lighter YCV
Floating Crane YD
Diving Tender YDT
Covered Lighter (self-propelled) YF
Ferryboat or Launch YFB
Yard Floating Dry Dock YFD
Covered Lighter (non-self-propelled) YFN
Large Covered Lighter YFNB
Dry Dock Companion Craft YFND
Lighter (special purpose) YFNX
Floating Power Barge YFP
Refrigerated Covered Lighter (self-propelled) YFR
Refrigerated Covered Lighter (non-self-propelled) YFRN
Covered Lighter (Range Tender) YFRT
Harbour Utility Craft YFU
Garbage Lighter (self-propelled) YG
Garbage Lighter (non-self-propelled) YGN
Dredge YM
Gate Craft YNG
Fuel Oil Barge (self-propelled) YO
Gasoline Barge (self-propelled) YOG
Gasoline Barge (non-self-propelled) YOGN
Fuel Oil Barge (non-self-propelled) YON
Oil Storage Barge YOS
Patrol Craft YP
Floating Pile Driver YPD
Floating Workshop YR
Repair and Berthing Barge YRB
Repair, Berthing and Messing Barge YRBM
Floating Dry Dock Workshop (Hull) YRDH
Floating Dry Dock Workshop (Mach.) YRDM
Radiological Repair Barge YRR
Seaplane Wreckage Derrick YSD
Sludge Removal Barge YSR
Large Harbour Tug YTB
Small Harbour Tug YTL
Medium Harbour Tug YTM
Drone Aircraft Catapult Control Craft YV
Water Barge (self-propelled) YW
Water Barge (non-self-propelled) YWN

* Note:
All LCUs, Utility Landing Craft, were reclassified from "Service Craft" to "Boats" in Nov. 1958.

UNITED STATES NAVY CARRIER BORNE AIRCRAFT

Name	Maker	Type	Dimensions	Power Plant	Armament	Performance	Notes
CRUSADER II F-8D and E	Ling-Temco- Vought	Single-Seat Fighter	Wing Span 35' 2" Folded 22' 6" Length 54' 5½"	One Pratt & Whitney J57 turbojet with after- burner	Four 20 mm. cannon, missiles, unguided rockets or bombs	Max. speed approx. 1,200 m.p.h. Range 500 miles	RF-8A is lower-powered photo. recon. version. RF-8A being converted to RF-8G.
F-III B (TFX)							
PHANTOM II F-4B F-4J	McDonnell	Two-Seat All weather Fighter	Wing Span 38' 5" Folded 27' 6½" Length 58' 3½"	Two General Electric J79 turbojets with afterburners	Missiles, bombs, rockets	Max. speed over 1,500 m.p.h. Range 1,800-2,100 miles	Replaced all Skyrays, Demons and early-model Crusaders.
SKYWARRIOR A-3B	Douglas	Attack Bomber	Wing Span 72' 6" Length 76' 4"	Two Pratt & Whitney J57 turbojets	Two 20 mm. cannon and 12,000 lb. of nuclear weapons or bombs	Max. speed 610 m.p.h. Range over 2,800 miles	EA-3B is radar counter- measures version. RA-3B is photo. recon. version. TA-3B is bombardier trainer
SKYHAWK A-4E	Douglas	Single-Seat Light Attack Bomber	Wing Span 27' 5" Length 42' 10½"	One Pratt & Whitney J52 turbojet	Two 20 mm. cannon, and 8,200 lb. of tor- pedoes, missiles, rockets, bombs or nuclear weapons	Max. speed 680 m.p.h. Range over 2,000 miles	A-4A, B and C are earlier versions with less-power- ful Wright J65 engine and smaller weapon load
VIGILANTE A-5A	North American	Two-Seat Attack Bomber	Wing Span 53' Length 73' 2½"	Two General Electric J79 turbojets with afterburners	Includes air-to-sur- face missiles and thermo-nuclear weapons	Max. speed over 1,300 m.p.h. Range over 2,000 miles	Operates from Forrestal class carriers. Weapons ejected from tunnel in tail. RA-5C has more fuel and reconnaissance equip- ment. Most have been built or converted to RA-5C type.
INTRUDER A-6A	Grumman	Two-Seat Attack Bomber	Wing Span 53' Folded 25' 2" Length 54' 7"	Two Pratt & Whitney J52 turbojets	15,000 lb. of missiles and bombs	Max. speed 720 m.p.h. at sea level	For high-subsonic attack at low levels in all wea- thers, by day and night.
CORSAIR A-7A							Modified F-8 Crusader
TRACKER S-2D S-2E	Grumman	Four-Seat Submarine Search and Attack	Wing Span 72' 7" Folded 27' 4" Length 43' 6"	Two Wright R-1820- 82A engines	Homing torpedoes, atomic depth charges, rockets, etc.	Max. speed at sea level, 280 m.p.h. Range 1,350 miles	S-2A and C are earlier versions with shorter span and length. TRACER E-1B is radar early warn- ing version
HAWKEYE E-2A	Grumman	Five-Seat Early Warn- ing Aircraft	Wing Span 80' 7" Length 56' 4"	Two Allison T56 turbo- props	None	Max. speed 297 m.p.h. Endurance 7 hours	Carries radar "Saucer" above fuselage
TRADER C-1A C-2A			Radome 24'			300 knots 1,300 nau- tical miles	Enlarged E-2A for "ca- rrier on board" delivery 15,000 lbs. cargo or 40 passengers.
UH-43C	Kaman	Four or Five-Seat Helicopter	Rotor Dia. 47' Fuselage Length 25'	One Pratt & Whitney R-1340-48 radial en- gine	None	Max. speed 109 m.p.h. Range 220 miles	UH-43D similar
SEASPRITE UH-2A and B	Kaman	Multi-Seat Helicopter	Rotor Dia. 44' Fuselage Length 36' 7"	One General Electric T58 shaft-turbine	None	Max. speed 162 m.p.h. Range 670 miles	For transport (11 passen- gers), rescue and ambu- lance duties.
SEABAT SH-34J	Sikorsky	Anti- Submarine Helicopter	Rotor Dia. 56' Fuselage Length 46' 9"	One Wright R-1820-84 radial air-cooled en- gine	Homing torpedo	Max. speed 123 m.p.h. Range 248 miles	Also Marine UH-34D Seahorse Utility version
SEA KING SH-3A SH-3D	Sikorsky	Four-seat Anti- Submarine Helicopter	Rotor Dia. 62' Fuselage Length 54' 9"	Two General Electric T58 shaft-turbine en- gines	840 lb. of Homing torpedoes and rockets	Max. speed 160 m.p.h. Range 540 miles	Amphibious. First U.S.N. anti-submarine hunter- killer helicopter
SEA KNIGHT CH-46A	Vertol (Boeing)	Assault Transport Helicopter	Rotor Dia. 50' Fuselage Length 44' 10"	Two General Electric T58 shaft-turbine engines	None	Max. speed 186 m.p.h. Range 265 miles	For Marines. Carries crew of three and 25 troops or 6,300 lb. cargo. UH-46A ship replenishment helicopter is similar
SEA STALLION CH-53A	Sikorsky	Assault Helicopter	Rotor Dia. 72' Fuselage Length 88'			Max. speed 200 m.p.h.	Marine Corps. 38 troops or 8,000 lbs. cargo. (UH- 53A)

UNITED STATES NAVY GUIDED MISSILES

Category	Name	Maker	Overall Length Ft.	Propulsion	Speed Mach.	Range Miles	Guidance System	Notes
AIR TO AIR	SPARROW IIIB AIM-7E	Raytheon	12	Rocketdyne solid propellant	3	8	Semi-active homing	Arms F-4B fighter
	SIDEWINDER 1A AIM-9B	Philco and General Electric	9.2	Naval Powder Plant solid propellant	2.5	2.1	Infra-red homing	
	SIDEWINDER 1C (AIM-9D)	Raytheon	9.4	Solid propellant			Infra-red homing	
AIR TO SURFACE	BULLPUP AGM-12B	Martin and Maxson	10.5	Thiokol liquid propellant (storable)	1.8	7	Command	Built around standard 250 lb. bomb and other warheads. Improved AGM-12C entering production
	SHRIKE AGM-45A	N.O.T.S.		Rocketdyne Solid propellant		approx 10	Radar homing	Anti-Radar missile.
	CONDOR	N. Am. Av. Co.					TV from A-6A	
SURFACE TO AIR	TALOS RIM-8D and E	Bendix	31.3	Bendix ramjet. Solid propellant booster	2.5	65 slant	Beam riding cruise phase. Semi-active homing	Carried by cruisers. High explosive or nuclear warhead.
	SUCCESSOR TO TERRIER-TARTAR	General Dynamics	13	Rocket engine		10 30		Tartar replacement 10 nautical miles. Terrier replacement with booster, dropped after launch, 30 nautical miles range. 12 in. dia.
	ADVANCED TERRIER RIM-2	General Dynamics	27	Allegany Ballistics Solid - propellant. Solid - propellant booster.	3.0	20 slant	Homing all the way.	Carried by frigates and smaller warships, as well as large ships.
	TARTAR (Improved) RIM-24B	General Dynamics	15	Aerojet-General solid propellant	2.5	over 10 slant	Radar	Carried by destroyers and as secondary armament in cruisers.
SURFACE TO SURFACE	POLARIS A-1 UGM-27A A-2 UGM-27B A-3 UGM-27C	Lockheed " "	28.5 31 31	Aerojet-General or Hercules Powder solid propellant	10 10 10	1,380 1,725 2,875	Inertial (M.I.T. design) (Manuf. G.E. & Hughes Aircraft)	Bombardment weapon of Fleet Ballistic Missile System, in "Lafayette", "Ethan Allen" and "George Washington" class nuclear powered submarines, each carrying 16 missiles and capable of submerged launch.
	POSEIDON B-3	Lockheed						Twice destructive power and accuracy of A-3

ANTI-SUBMARINE WEAPONS

WEAPON RUR-4A	A 12.75 in. anti-submarine rocket weighing 500 lbs., fired at a detected submarine from a launcher with an almost circular field of fire.							
ASROC (Anti-Submarine Rocket) RUR-5A	Ballistic ASW rocket developed by Honeywell, operational since 1961. Payload can be either a Gen. Elect. Mk. 44 acoustic-homing torpedo or nuclear depth charge, which enters water after aerial trajectory to vicinity of target. Length 15 ft. Weight approx. 1,000 lb.							
SUBROC (Submarine Rocket) UUM-44A	Developed by Goodyear Aerospace Corporation, a 4,000 lb. rocket-propelled missile about 21 ft. in length, launched from surfaced or from submerged submarines, emerges from the water and is guided by self-contained inertial guidance system in aerial trajectory of 30 to 50 miles to the vicinity of the target to dive on enemy submarines. Has range considerably greater than present ASW weapons. Nuclear warhead. Fired from 21 inch torpedo tube. Side torpedo tubes of "Thresher" class.							
ASTOR	A wire-guided rocket-boosted anti-submarine torpedo with nuclear warhead, in production by Westinghouse. Extremely high reliability and accuracy. Capable of destroying deep-diving, high speed submarines. Weight over 2,000 lb. Range about 11 miles.							
DASH QH-50C	Drone anti-submarine helicopter for use by destroyers. Helicopter carries two ASW torpedoes released remotely by destroyer after being positioned over target. Operational in many destroyers.							

The Norwegian designed ASW missile system TERNE 3 in escorts *Charles Berry* and *McMorris* was removed in 1964, and "Terne" is no longer in the U.S. Navy.

UNITED STATES NAVY SERIAL NUMBERS

**CVAN—Nuclear Powered
Attack Aircraft Carrier**

65 Enterprise

**CVA—Attack Aircraft
Carriers**

14 Ticonderoga
19 Hancock
31 Bon Homme Richard
34 Oriskany
38 Shangri-La
41 Midway
42 Franklin D. Roosevelt
43 Coral Sea
59 Forrestal
60 Saratoga
61 Ranger
62 Independence
63 Kitty Hawk
64 Constellation
66 America
67 John F. Kennedy

**CVS—Support Aircraft
Carriers**

9 Essex
10 Yorktown
11 Intrepid
12 Hornet
15 Randolph
16 Lexington
18 Wasp
20 Bennington
33 Kearsarge
36 Antietam
39 Lake Champlain

**LPH—Amphibious Assault
Ships**

2 Iwo Jima
3 Okinawa
4 Boxer (ex-CVS 21)
5 Princeton (ex-CVS 37)
7 Guadalcanal
8 Valley Forge (ex-CVS 45)
9 Guam
10 Tripoli

**AVT—Auxiliary Aircraft
Transports**

2 Monterey (ex-CVL 26)
3 Cabot (ex-CVL 28)
5 San Jacinto (ex-CVL 30)
8 Franklin (ex-CVS 13)
9 Bunker Hill (ex-CVS 17)
10 Leyte (ex-CVS 32)
11 Philippine Sea (ex-CVS 47)
12 Tarawa (ex-CVS 40)

**AKV—Aircraft Ferry and
Cargo Ships**

8 Kula Gulf (ex-CVE 108)
9 Cape Gloucester (ex-CVHE 109)
11 Vella Gulf (ex-CVHE 111)
12 Siboney (ex-CVE 112)
14 Rendova (ex-CVE 114)
16 Badoeing Strait (ex-CVE 116)
17 Saifor (ex-CVHE 117)
19 Point Cruz (ex-CVE 119)
21 Rabaul (ex-CVHE 121)
23 Tinian (ex-CVHE 123)
37 Commencement Bay (ex-CVHE 105)
40 Card (ex-CVU 11, ex-CVHE 11)
41 Core (ex-CVU 13, ex-CVHE 13)
42 Breton (ex-CVU 23, ex-CVHE 23)
43 Croatan (ex-CVU 25, ex-CVHE 25)

**AGMR—Major Communications
Relay Ships**

1 Annapolis (ex-Gilbert Islands, AKV 39, ex-CVE 107)
2 Arlington (ex-Saipan, ex-CC 3, ex-AVT 6, ex-CVL 48)

BB—Battleships

61 Iowa
62 New Jersey
63 Missouri
64 Wisconsin

CC—Command Ships

1 Northampton (ex-CLC 1, ex-CA 125)
2 Wright (ex-AVT 7, ex-CVL 49)

**CGN—Nuclear Powered
Guided Missile Cruiser**

9 Long Beach

CG—Guided Missile Cruisers

10 Albany
11 Chicago
12 Columbus

**CAG—Guided Missile
Heavy Cruisers**

1 Boston
2 Canberra

**CLG—Guided Missile Light
Cruisers**

3 Galveston
4 Little Rock
5 Oklahoma City
6 Providence
7 Springfield
8 Topeka

CA—Heavy Cruisers

68 Baltimore
71 Quincy
72 Pittsburgh
73 St. Paul
75 Helena
122 Oregon City
124 Rochester
130 Bremerton
131 Fall River
132 Macon
133 Toledo
134 Des Moines
135 Los Angeles
139 Salem
148 Newport News

CL—Light Cruisers

64 Vincennes
65 Pasadena
90 Astoria
101 Amsterdam
102 Portsmouth
103 Wilkes Barre
106 Fargo
144 Worcester
145 Roanoke

**CLAA—Anti-Aircraft Light
Cruisers**

97 Flint
98 Tucson
120 Spokane
121 Fresno

**DLGN—Nuclear Powered
Guided Missile
Destroyer Leaders
(Frigates)**

25 Bainbridge
35 Truxtun

**DLG—Guided Missile
Destroyer Leaders
(Frigates)**

6 Farragut
7 Luce
8 Macdonough
9 Coontz
10 King
11 Mahan
12 Dahlgren
13 William V. Pratt
14 Dewey
15 Preble
16 Leahy
17 Harry E. Yarnell
18 Worden
19 Dale
20 Richmond K. Turner
21 Gridley
22 England
23 Halsey
24 Reeves
26 Belknap
27 Josephus Daniels
28 Wainwright
29 Jouett
30 Horne
31 Sterett
32 William H. Standley
33 Fox
34 Biddle

**DL—Destroyer Leaders
(Frigates)**

1 Norfolk (ex-CLK 1)
2 Mitscher (ex-DD 927)
3 John S. McCain (ex-DD 928)
4 Willis A. Lee (ex-DD 929)
5 Wilkinson (ex-DD 930)

**DDG—Guided Missile
Destroyers**

2 Charles F. Adams (ex-DDG 952)
3 John King (ex-DDG 953)
4 Lawrence (ex-DDG 954)
5 Claude V. Ricketts (ex-Biddle) (ex-DDG 955)
6 Barney (ex-DDG 956)
7 Henry B. Wilson (ex-DDG 957)
8 Lynde McCormick (ex-DDG 958)
9 Towers
10 Sampson
11 Sellers
12 Robinson
13 Hoel
14 Buchanan
15 Berkeley
16 Joseph Strauss
17 Conygham
18 Sammes
19 Tattnell
20 Goldsborough
21 Cochran
22 Benjamin Stoddert
23 Richard E. Byrd
24 Yaddell

DD—Destroyers

422 Mayo
423 Gleaves
424 Niobrara
425 Madison
428 Charles F. Hughes
432 Kearny
435 Grayson
437 Woolsey
439 Edison
440 Ericsson
441 Wilkes
443 Swanson
445 Fletcher
446 Radford
447 Jenkins
448 La Vallette
449 Nicholas
450 O'Bannon
455 Hambleton
462 Fitch
465 Saufley
466 Waller
468 Taylor
470 Bache
471 Beale
475 Hudson
478 Stanley
479 Stevens
480 Halford
489 Mervine
490 Quick
491 Farenholt
492 Bailey
493 Carmick
494 Doyle
495 Endicott
496 McCook
497 Frankford
498 Philip
499 Renshaw
501 Schroeder
502 Sigbee
507 Conway
508 Cony
510 Eaton
511 Foote
513 Terry
517 Walker
519 Daly
521 Kimberly
528 Mullany
530 Trathen
531 Hazelwood
534 McCord
535 Miller
536 Owen
537 Sullivan
538 Stephen Potter
539 Tingey
540 Twining
541 Yarnall
544 Boyd
547 Cowell
553 John D. Henley
554 Franks
558 Laws
561 Pritchett
562 Robinson
563 Ross
564 Rowe
566 Stoddard
567 Watts
568 Wren
573 Harrison
574 John Rodgers
575 McKee
577 Sproston
578 Wickes
580 Young
585 Haraden
587 Bell
588 Burns
589 Izard
590 Paul Hamilton

594 Hart
595 Metcalfe
596 Shields
597 Wiley
598 Bancroft
600 Boyle
601 Champlin
602 Meade
603 Murphy
604 Parker

606 Coghlan
607 Frazier
608 Gansevoort
609 Gillespie
610 Hobby
611 Kalk
612 Kendrick
613 Laub
614 Mackenzie
615 McLanahan
616 Niels
617 Ordonaux
618 Davison
619 Edwards
621 Jeffers
623 Nelson
626 Satterlee
627 Thompson
628 Welles
629 Abbott
630 Braine
632 Cowie
633 Knight
634 Doran
635 Earle
637 Gherardi
638 Herndon
641 Tillman
643 Sigourney
645 Stevenson
646 Stockton
647 Thorn
649 Albert W. Grant
650 Caperton
651 Cogswell
652 Ingersoll
653 Knapp
654 Bears
655 John Hood
656 Van Valkenburgh
657 Charles J. Badger
658 Colahan
659 Dashiell
660 Bullard
661 Kidd
662 Bennion
665 Bryant
666 Black
667 Chauncey
668 Clarence K. Bronson
669 Cotton
671 Gatling
672 Healy
673 Hickox
674 Hunt
675 Lewis Hancock
676 Marshall
679 McNair
680 Melvin
681 Hopewell
682 Porterfield
683 Stockham
684 Wedderburn
685 Picking
686 Halsey Powell
687 Uhlmann
688 Remy
690 Norman Scott
691 Mertz
692 Allen M. Sumner
693 Moale
694 Ingraham
696 English
697 Charles S. Sperry
698 Ault
699 Waldron
700 Haynsworth
701 John W. Weeks
702 Hank
703 Wallace L. Lind
704 Borie
705 Compton
706 Gainard
707 Soley
708 Harlan R. Dickson
709 Hugh Purvis
710 Gearing
711 Eugene A. Greene
712 Gyatt (ex-DDG 1, ex-DDG 712)
713 Kenneth D. Bailey/DDR
714 William R. Rush
715 William M. Wood
716 Wiltzie
717 Theo E. Chandler
718 Hammer
719 Epperson
722 Barton
723 Walke
724 Laffey
725 O'Brien
727 De Haven
728 Mansfield
729 Lyman K. Swenson
730 Collett
731 Maddox
732 Hyman
734 Purdy
742 Frank Knox/DDR
743 Southerland
744 Blue

U.S.N. Serial Numbers—continued

DD—Destroyers—continued

745 Brush
746 Taussig
747 Samuel L. Moore
748 Harry E. Hubbard
752 Alfred A. Cunningham
753 John R. Pierce
754 Frank E. Evans
755 John A. Bola
756 Beatty
757 Putnam
758 Strong
759 Lofberg
760 John W. Thomason
761 Buck
762 Henley
763 William C. Lawe
764 Lloyd Thomas
765 Keppler
770 Lowry
775 Willard Keith
776 James C. Owens
777 Zellars
778 Massey
779 Douglas H. Fox
780 Stormes
781 Robert K. Huntington
782 Rowan
783 Gurka
784 McKean
785 Henderson
786 Richard B. Anderson
787 James K. Kyes
788 Hollister
789 Eversole
790 Shelton
793 Cassin Young
794 Irwin
795 Preston
800 Porter
802 Gregory
805 Chevalier
806 Higbee
807 Benner
808 Dennis J. Buckley
817 Corry
818 New
819 Holder
820 Rich
821 Johnston
822 Robert H. McCard
823 Samuel B. Roberts
824 Basilone
825 Carpenter
826 Agerholm
827 Robert A. Owens
829 Myles C. Fox
830 Everett F. Larson
831 Goodrich/DDR
832 Hanson
833 Herbert J. Thomas
834 Turner/DDR
835 Charles P. Cecil
836 Georges K. Mackenzie
837 Sarsfield
838 Ernest G. Small/DDR
839 Power
840 Glennon
841 Noa
842 Fiske
843 Warrington
844 Perry
845 Bausell
846 Ozbourn
847 Robert L. Wilson
848 Witek
849 Richard E. Kraus
850 Joseph P. Kennedy Jr.
851 Rupertus
852 Leonard F. Mason
853 Charles A. Roan
857 Bristol
858 Fred T. Berry
859 Norris
860 McCaffery
861 Harwood
862 Vogelgesang
863 Steinkamp
864 Harold J. Ellison
865 Charles R. Ware
866 Cone
867 Scribbling
868 Brownson
869 Arnold J. Isbell
870 Fechteler
871 Damato
872 Forrest Royal
873 Hawkins
874 Duncan/DDR
875 Henry W. Tucker
876 Rogers
877 Perkins
878 Vesoler
879 Leary
880 Dyess
881 Bordelon
882 Furse
883 Newman K. Perry
884 Floyd B. Parks
885 John R. Craig
886 Orleck
887 Brinkley Bass
888 Stickell
889 O'Hare
890 Meredith
931 Forrest Sherman
932 John Paul Jones
933 Barry
936 Decatur
937 George F. Davis
938 Jonas Ingram
940 Manley
941 Dupont
942 Bigelow

943 Blandy
944 Mullinnix
945 Hull
946 Edson
947 Somers
948 Morton
949 Parsons
950 Richard S. Edwards
951 Turner Joy

DEG—Guided Missile Escort Ships

1 Brooke
2 Ramsey
3 Schofield
4 Talbot
5 Richard L. Page
6

DE—Escort Ships

51 Buckley
59 Foss
129 Edsall
130 Jacob Jones
131 Hammann
132 Robert E. Peary
134 Pope
137 Herbert C. Jones
138 Douglas L. Howard
139 Farquhar
140 J.R.Y. Blakeley
141 Hill
142 Fessenden/DER
145 Huse
146 Inch
147 Blair/DER
148 Brough
149 Chatelain
150 Neunzer
151 Poole
152 Peterson
153 Reuben James
162 Levy
163 McConnell
164 Osterhaus
165 Parks
167 Acrea
170 Booth
172 Cooner
180 Trumpeter
181 Straub
191 Coffman
198 Lovelace
199 Manning
200 Neuendorf
201 James E. Craig
202 Eichenberger
203 Thomason
210 Otter
213 William T. Powell
217 Coolbaugh
218 Darby
219 J. Douglas Blackwood
220 Francis M. Robinson
223 Spangenberg
224 Rudderow
225 Day
231 Hodges
238 Stewart
239 Sturtevant/DER
240 Moore
241 Keith
242 Tomich
243 J. Richard Ward
244 Otterstetter/DER
245 Sloat
246 Snowden
247 Stanton
248 Swasey
249 Marchand
250 Hurst
251 Camp DER
252 Howard D. Crow
253 Pettit
254 Ricketts
255 Sellstrom/DER
316 Harveson/DER
317 Joyce/DER
318 Kirkpatrick/DER
320 Menges
321 Mosley
322 Newell/DER
323 Pride
324 Falgout/DER
325 Lowe/DER
326 Thomas J. Gary/DER
327 Brister/DER
328 Finch/DER
329 Kretschmer/DER
330 O'Reilly
331 Koiner/DER
332 Price/DER
333 Strickland/DER
334 Forster/DER
335 Daniel
336 Roy O. Hale/DER
337 Dale W. Petersen
338 Martin H. Ray
339 John C. Butler
340 O'Flaherty
341 Raymond
342 Richard A. Suesens
343 Abercrombie
345 Robert Brazier
346 Edwin A. Howard
347 Jesse Rutherford
348 Key
349 Gantry
350 Traw
351 Maurice J. Manuel
352 Naifeh
353 Doyle C. Barnes
354 Kenneth M. Willett
355 Jaccard

356 Lloyd E. Acrea
357 George E. Davis
358 Mack
360 Johnnie Hutchins
361 Walton
362 Rolf
363 Pratt
364 Rombach
365 McGinty
366 Alvin C. Cockrell
367 French
368 Cecil J. Doyle
369 Thaddeus Parker
370 John L. Williamson
371 Presley
372 Williams
382 Ramsden/DER
383 Mills/DER
384 Rhodes/DER
385 Richey
386 Savage/DER
387 Vance/DER
388 Lansing/DER
389 Durant/DER
390 Calcaterra/DER
391 Chambers/DER
392 Merrill
393 Haverfield/DER
394 Swenning
395 Willis
396 Janssen
397 Wilhoite/DER
398 Cockrill
399 Stockdale
400 Hissem/DER
402 Richard S. Bull
403 Richard M. Rowell
405 Dennis
406 Edmonds
408 Straus
409 La Prade
410 Jack Miller
411 Stafford
412 Walter C. Wann
414 Le Ray Wilson
415 Lawrence C. Taylor
416 Melvin R. Nawman
417 Oliver Mitchell
418 Tabberer
419 Robert F. Keller
420 Leland E. Thomas
421 Chester T. O'Brien
422 Douglas A. Munro
423 Duffilho
424 Haas
438 Corbesier
439 Conklin
441 William Seiverling
442 Ulvert M. Moore
443 Kendall C. Campbell
444 Goss
445 Grady
446 Charles E. Brannon
447 Albert T. Harris
448 Cross
449 Hanna
450 Joseph E. Connolly
508 Gilligan
510 Heyliger
531 Edward H. Allen
532 Tweedy
533 Howard F. Clark
534 Silverstein
535 Lewis
536 Bivin
537 Rizzi
538 Osberg
539 Wagner/DER
540 Vandivier/DER
577 Alexander J. Luke
578 Robert I. Paine
579 Riley
580 Leslie L. B. Knox
581 McNulty
582 Metivier
583 George A. Johnson
584 Charles J. Kimmel
586 Lough
587 Thomas F. N'ckel
588 Peiffer
589 Tinsman
634 Whitehurst
638 Willmarth
639 Gendreau
640 Fieberling
641 William C. Cole
642 Paul G. Baker
643 Damon M. Cummings
644 Vammen
665 Jenks
666 Durik
667 Wiseman
679 Greenwood
680 Loeser
681 Gillette
683 Henry R. Kenyon
684 De Long
685 Coates
686 Eugene E. Elmore
696 Spangler
697 George
698 Raby
699 Marsh
700 Currier
701 Osmus
702 Earl V. Johnson
703 Holton
704 Croman
705 Frybarger
707 Jobb
708 Parla
742 Hilbert
743 Lamons
744 Kyne
745 Snyder

748 Tills
749 Roberts
750 McClelland
765 Earl K. Olsen
767 Oswald
769 Neal A. Scott
795 Gunason
796 Major
797 Weeden
798 Varian
800 Jack W. Wilke
1006 Dealey
1014 Cromwell
1015 Hammerberg
1021 Courtney
1022 Lester
1023 Evans
1024 Bridget
1025 Bauer
1026 Hooper
1027 John Willis
1028 van Voorhis
1029 Hartley
1030 Joseph K. Taussig
1033 Claud Jones
1034 John P. Perry
1035 Charles Berry
1036 McMorris
1037 Bronstein
1038 McCloy
1040 Garcia
1041 Bradley
1043 Edward McDonnell
1044 Brumby
1045 Davidson
1047 Voge
1048 Sample
1049 Koelsch
1050 Albert David
1051 O'Callahan
1052 Knox

SSBN—Nuclear Powered Fleet Ballistic Missile Submarines

598 George Washington
599 Patrick Henry
600 Theodore Roosevelt
601 Robert E. Lee
602 Abraham Lincoln
608 Ethan Allen
609 Sam Houston
610 Thomas A. Edison
611 John Marshall
616 Lafayette
617 Alexander Hamilton
618 Thomas Jefferson
619 Andrew Jackson
620 John Adams
622 James Monroe
623 Nathan Hale
624 Woodrow Wilson
625 Henry Clay
626 Daniel Webster
627 James Madison
628 Tecumseh
629 Daniel Boone
630 John C. Calhoun
631 Ulysses S. Grant
632 Von Steuben
633 Casimir Pulaski
634 Stonewall Jackson
635 Sam Rayburn
636 Nathanael Greene
640 Benjamin Franklin
641 Simon Bolivar
642 Kamehameha
643 George Bancroft
644 Lewis and Clark
645 James K. Polk
654 George C. Marshall
655 Henry L. Stimson
656 George Washington Carver
657 Francis Scott Key
658 Mariano G. Vallejo
659 Will Rogers

U.S.N. Serial Numbers—continued

SSN—Nuclear Powered

Attack Submarines

571	Nautilus
575	Seawolf
578	Skate
579	Swordfish
583	Sargo
584	Seadragon
585	Skipjack
586	Triton (ex-SSRN)
587	Halibut (ex-SSGN)
588	Scamp
589	Scorpion
590	Sculpin
591	Shark
592	Snook
594	Permit
595	Plunger
596	Barb
597	Tullibee
603	Pollack
604	Haddock
605	Jack
606	Tinosa
607	Dace
612	Guardfish
613	Flasher
614	Greenling
615	Gato
621	Haddock
637	Sturgeon
638	Whale
639	Tautog
646	Grayling
647	Pogy
648	Aspro
649	Sunfish
650	Pargo
651	Queenfish
652	Puffer
653	Ray
660	Sandlance
661	Lapon
662	Gurnard
663	Hammerhead
664	
665	
666	
667	
668	
669	
670	
671	Narwhal

SS—Submarines

214	Grouper AGSS (ex-SSK)
224	Cod AGSS
225	Cero AGSS
228	Drum AGSS
236	Silversides AGSS
240	Angler AGSS (ex-SSK)
241	Bashaw AGSS (ex-SSK)
242	Bluegill (ex-SSK)
243	Bream AGSS (ex-SSK)
244	Cavalla AGSS (ex-SSK)
245	Cobia AGSS
246	Croaker (ex-SSK)
256	Hake AGSS
269	Rasher AGSS (ex-SSR)
270	Raton AGSS (ex-SSR)
272	Redfin AGSS (ex-SSR)
274	Rock AGSS (ex-SSR)
282	Tunny (SSG)
286	Billfish AGSS
287	Bowfin AGSS
288	Cabrilla AGSS
291	Creville AGSS
292	Devilfish AGSS
295	Hackback AGSS
297	Ling AGSS
298	Lionfish AGSS
299	Manta AGSS
300	Moray AGSS
301	Roncador AGSS
302	Sabalo
303	Sablefish
304	Seahorse
310	Batfish
311	Archerfish AGSS
313	Perch/APSS
315	Sealion/APSS
318	Baya AGSS
319	Becuna
321	Besugo AGSS
322	Blackfin
323	Calman
324	Blenny
328	Charr
331	Bugara
334	Cabezon AGSS
335	Dentuda AGSS
336	Capitane AGSS
337	Carbonero (ex-SSG)
338	Carp
340	Catfish
340	Entemedor
341	Chivo
342	Chopper
343	Clagamore
344	Cobbler
346	Corporal
347	Cubera
348	Cusk (ex-SSG)
349	Diodon
350	Dogfish
351	Greenfish
352	Halfback
362	Guavina/AGSS
365	Hardhead
368	Jalao
374	Loggerhead AGSS
377	Menhaden
382	Picuda

SS—Submarines—continued

383	Pampanito AGSS
384	Parche AGSS
385	Bang AGSS
387	Pintado AGSS
388	Pipefish AGSS
389	Piranha AGSS
391	Pomfret
392	Sterlet
394	Razorback
395	Redfish AGSS
396	Ronquill
398	Segundo
399	Seacat
401	Seadog AGSS
402	Seafox
403	Atule
405	Sea Owl
406	Sea Poacher
407	Sea Robin
408	Sennet
409	Piper
410	Threadfin
411	Spadefish AGSS
412	Trepang AGSS
416	Tiru
417	Tench
418	Thornback
419	Tigrone (ex-SSR) AGSS
420	Tirante
421	Trutta
423	Torsk
424	Quillback
425	Trumpetfish
426	Tusk
475	Argonaut
476	Runner
478	Cutlass
480	Medregal
481	Requin (ex-SSR)
482	Irex
483	Sea Leopard
484	Odax
485	Sirago
486	Pomodori
487	Remora
489	Spinax (ex-SSR)
490	Volador
522	Amberjack
523	Grampus
524	Pickrel
525	Grenadier
551	Bass (ex-SSK 2)
552	Bonita (ex-SSK 3)
555	Dolphin AGSS
563	Tang
564	Trigger
565	Wahoo
566	Trout
567	Gudgeon
568	Harder
569	Albacore/AGSS
572	Sailfish (ex-SSR)
573	Salmon (ex-SSR)
574	Grayback APSS (ex-SSG)
576	Darter
577	Growler (SSG)
580	Barbel
581	Blueback
582	Bonefish

SST—Target Submarines

1	Mackerel
2	Marlin
3	Barracuda (ex-SSK 1)

DM—Destroyer Minelayers

23	Robert E. Smith
24	Thomas E. Fraser
25	Shannon
26	Harry F. Bauer
27	Adams
28	Tolman
29	Henry A. Wiley
30	Shen
32	Lindsey
33	Gwin

MMF—Fleet Minelayer

5 Terror

MCS—Mine Counter-measures Support Ship

1	Catskill
2	Ozark
6	Orleans Parish
7	Epping Forest

MSO—Ocean Minesweepers

421	Agile
422	Aggressor
423	Avenger
424	Bold
425	Bulwark
426	Conflic
427	Constant
428	Dash
429	Detector
430	Direct
431	Dominant
432	Dynamic
433	Elusive
434	Embattle
435	Endurance
436	Energy
437	Enhance
438	Esteem
439	Excel
440	Exploit
441	Exultant

442	Fearless
443	Fidelity
444	Firm
445	Force
446	Fortify
447	Guide
448	Illusive
449	Impervious
455	Implicit
456	Inflict
457	Loyalty
458	Lucid
459	Nimble
460	Notable
461	Observer
462	Pinnacle
463	Pivot
464	Pluck
466	Prime
467	Reaper
468	Rival
469	Sagacity
470	Salute
471	Skill
472	Valour
473	Vigor
474	Vital
488	Conquest
489	Gallant
490	Leader
491	Persistent
492	Pledge
493	Stalwart
494	Sturdy
495	Sweave
496	Venture
508	Acme
509	Adroit
510	Advance
511	Affray
519	Ability
520	Alacrity
521	Assurance

MSF—Fleet Minesweepers

55	Raven
58	Broadbill
59	Chickadee
60	Nuthatch
61	Pheasant
64	Starling
100	Heed
101	Herald
102	Motive
103	Oracle
104	Pilot
105	Pioneer
110	Revenge
111	Sage
114	Staff
116	Speed
118	Steady
120	Sway
122	Swift
123	Symbol
124	Threat
126	Token
127	Tumult
128	Velocity
131	Zeal
165	Counsel
215	Cruise
240	Hazard
280	Prowess
304	Scurry
306	Spectre
307	Staunch
308	Strategy
309	Strength
311	Superior
314	Champion
315	Chief
316	Competent
317	Defense
318	Devastator
319	Gladiator
320	Impeccable
322	Spear
324	Vigilance
340	Ardent
341	Dextrous
362	Gadwal
364	Graylag
374	Pidgeon
375	Pochard
377	Quail
379	Roselle
381	Scoter
384	Spring
386	Tercel
390	Wheatear

MHC—Coastal Minehunters

41 Bittern

MSC—Coastal Minesweepers

121	Bluebird
122	Cormorant
190	Falcon
191	Frigate Bird
192	Humming Bird
193	Jacana
194	Kingbird
195	Limpkin
196	Meadow Lark
197	Parrot
198	Peacock
199	Phoebe
201	Shrike
203	Thrasher
204	Thrush

205	Vireo
206	Warbler
207	Whippoorwill
208	Widgeon
209	Woodpecker
289	Albatross
290	Gannet

MSC(O)—Old Coastal Minesweepers

24	Linnet
33	Plover
47	Fulmar
49	Lorikeet
51	Reedbird
54	Ruff
56	Turkey
58	Siskin

ARVH—Aeronautical

1	Corpus Christi Bay (ex-Albemarle, AV 5)
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AVM—Guided Missile Ship

1	Norton Sound (ex-AV 11)
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AV—Seaplane Tenders

7	Currituck
10	Chandeleur
12	Pine Island
13	Salisbury Sound

PCE—Escorts

856	Whitehall
877	Havre
880	Ely
902	Portage

PCER—Rescue Escorts

849	Somersworth
850	Fairview
851	Rockville
852	Brattleboro
853	Amherst
855	Rexburg
857	Marysville

PC—Submarine Chaser

618	Weatherford
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PCS—Wooden Submarine Chasers

1385	Hollidaysburg
1387	Beaufort
1431	Grafton

AGC—Amphibious Force Flagships

7	Mount McKinley
11	Eldorado
12	Estes
16	Pocono
17	Taconic

WPG—Coast Guard Gunboats

31	Bibb
32	Campbell
33	Duane
35	Ingham
36	Spencer
37	Taney
39	Owasco
40	Winnebago
41	Chautauqua
42	Sebago
43	Iroquois
44	Wachusett
64	Escanaba
65	Winona
66	Klamath
67	Minnetonka
68	Androskoggin
69	Mendota
70	Pontchartrain
715	Hamilton

WAVP—Coast Guard Gunboats

370	Casco
371	Mackinac
372	Humboldt
373	Matagorda
374	Absecon
375	Chincoteague
376	Coos Bay
377	Rockaway
378	Half Moon
379	Unimac
380	Yakutat
381	Barataria
382	Bering Strait
383	Castle Rock
384	Cook Inlet
385	Dexter
386	McCulloch
387	Gresham

UNITED STATES COAST GUARD

Administration

Commandant, United States Coast Guard: Admiral Edwin J. Roland.
Assistant Commandant, U.S.C.G.: Vice-Admiral William D. Shields.
Chief of Staff of the Coast Guard: Rear-Admiral Paul E. Trimble.
Superintendent of U.S. Coast Guard Academy: Rear Admiral C.R. Bender.

Personnel

1963 Fiscal Year: Authorized Strength: 34,129 officers and men.
 1964 Fiscal Year: Authorized Strength: 31,959 officers and men.
 1965 Fiscal Year: Authorized Strength: 31,798 officers and men.
 1966 Fiscal Year: Authorized Strength: 32,519 officers and men.

I.—ESTABLISHMENT

The United States Coast Guard was established by the Act of Congress approved January 28, 1915, which consolidated the Revenue Cutter Service founded in 1790 and the Life Saving Service founded in 1878.

The act of establishment as amended provides (Title 14, U.S. Code, Part I, Sect. 1) "The Coast Guard as established January 28, 1915, shall be a military service and a branch of the armed forces of the United States at all times. The Coast Guard shall be a service in the Treasury Department, except when operating as a service in the Navy."

The Lighthouse Service, founded in 1789, was transferred to the Coast Guard on July 1, 1939, as a result of the President's Reorganization Plan No. 11.

On February 28, 1942, the President transferred temporarily from the Secretary of Commerce to the Treasury Department certain safety-at-sea functions of the former Bureau of Marine Inspection and Navigation. These duties were delegated to the Coast Guard. The President's Reorganization Plan III, which became effective July 16, 1946, made this temporary transfer of functions permanent.

II.—DUTIES

1. The peacetime duties of the Coast Guard have as their principal objective safety and security at sea through enforcement of the navigation laws, saving life and assistance to vessels in distress, maintenance of aids to navigation, marine inspection, and oceanography.

2. Law enforcement duties, performed for all departments of the government, include those relating to customs, movements and anchorage of vessels, immigration, quarantine, neutrality, navigation and other laws governing merchant vessels and motor boats, safety of life on navigable waters during regattas, oil pollution, sponge fisheries, protection of game, seal and fisheries in Alaska, protection of bird reservations established by Executive Order and suppression of mutinies.

3. Life saving and assistance duties include maintenance of coastal stations and communication lines on the continental coasts of the United States, conduct of the International Ice Patrol, icebreaking, weather patrol, derelict destruction, winter cruising on the Atlantic coast, extension of medical aid to fishing vessels, Alaska Patrol and flood relief work. In its humanitarian duties the Coast Guard renders aid and assistance to vessels and aircraft in distress irrespective of nationality and extends its protection, if needed, to all shipping within the scope of its operations.

4. The Coast Guard maintains more than 42,000 navigation aids, consisting of lighthouses, lightships, off-shore light structures, radio beacons, buoys, radar beacons, world-wide loran, and unlighted beacons on the sea and lake coasts of the United States, on the rivers of the United States, and on the coasts of all other territory under United States jurisdiction, with the exception of Panama.

DUTIES—continued

5. In time of national emergency or when the President so directs the Coast Guard operates as a part of the Navy.

A military organization was adopted at the time the service was established in 1790, after the dissolution of the Revolutionary Navy. This organization has been continued since that date for the purpose of maintaining the general efficiency of the operation of the service in its law enforcement duties in time of peace.

The executive direction under which the Coast Guard operates as a part of the Navy in time of war is similar in effect to a measure of mobilization. In this respect the Coast Guard is a potential reserve force for the Navy.

No personnel are normally assigned or equipped as land troops. Vessels are prepared in emergencies to equip landing forces with small arms and machine guns; stations are similarly prepared to undertake emergency police duties in a more limited sense, because of the smaller units involved but in both cases these duties would be incidental to the primary purpose of the service, the enforcement of law on the high seas and navigable waters of the United States and the saving of life and property.

III.—ORGANIZATION

For the administration and operation of the Coast Guard, the United States, including its territories and insular possessions and the waters adjacent thereto are divided into 12 districts. These are grouped into two area commands. The EASTERN AREA includes the Atlantic and Gulf Coasts. The WESTERN AREA includes the Pacific. Heading the Coast Guard is the Commandant in Washington, D.C.

IV.—PERSONNEL

Uniforms of officers and men are similar to those of U.S. Navy, but commissioned officers wear a gold shield on the sleeve instead of a star, and cap device is a gold spread-eagle, the talons grasping a horizontal foul anchor. A silver shield is mounted on the eagle's breast. Enlisted men and women of the Coast Guard wear a shield on the lower right sleeve.

V.—VESSELS

Coast Guard vessels are designated Coast Guard cutters. Those of 110 feet tug type and below are detailed to the larger maritime ports to enforce Customs and Navigation laws and the regulation of the anchorage and movement of vessels.

VI.—AVIATION

Major air stations in commission number eleven. Location: Salem, Mass.; Brooklyn, N.Y.; Miami, Fla.; St. Petersburg, Fla.; San Diego, California; Port Angeles, Washington; Elizabeth City, N.C.; San Francisco, California; Traverse City, Michigan; Barbers Point, Oahu, Hawaii; Annette, Alaska.

There are also 15 small air stations in the continental U.S., Newfoundland, Bermuda, Puerto Rico, Hawaii, Alaska, Guam, Philippines and Italy, and one air detachment at Quonset Pt., R.I.

PATROL GUNBOATS

New Construction (WPG)

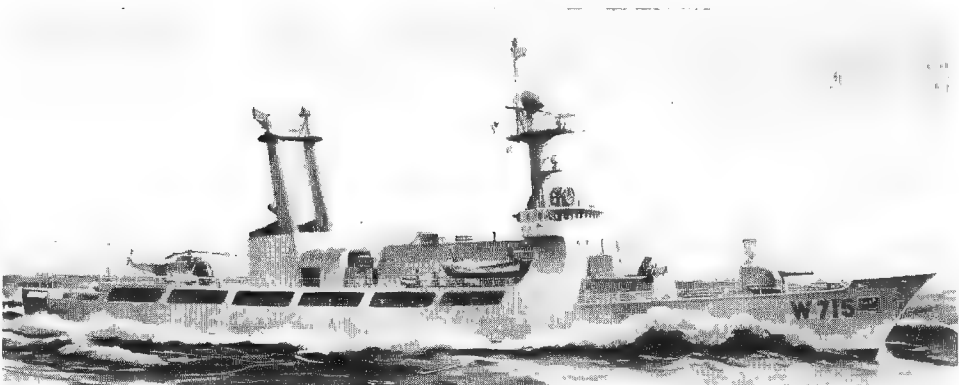
2+3 High Endurance Cutter Type

WPG 715 HAMILTON

WPG 716

- Displacement: 2,716 tons standard (3,000 tons full load)
- Dimensions: 350 (w.l.), 378 (o.a.)×42×14 feet
- Guns: 1—5 inch, 38 cal.; 1—3 inch, 50 cal.
- Aircraft: 2—HH 52A helicopter
- Machinery: 2 Fairbanks-Morse diesels plus 2 Pratt & Whitney gas turbines. 2 shafts. Total S.H.P.: 36,000 =29 kts.
- Radius: 11,500 miles at 20 kts., cruising range: 3,000 miles at 25 kts. with gas turbines cut in
- Complement: Quarters for 17 officers, 152 men, plus 6 oceanographers

General
The prototype long endurance rescue vessel of the planned new construction programme. Helicopter deck aft. Supplies for 40 days at sea. Creeping engine for a speed of approximately three knots for station keeping. Twin "macks" or combined masts and stacks.
The first two cutters are under construction at the Avondale Shipyards Inc. at a cost of \$10,151,000 each. *Hamilton* is scheduled to be completed in Sep. 1966, and the second cutter, not yet named, in Nov. 1967. Two Liaen controllable pitch propellers, 13 ft. dia. Bow thruster propeller. Engine control and propeller pitch control console on navigation bridge, either bridge wing station or the engine room control booth. Three additional ships of the class, WPG 717, 718 and 719, are provided for under the Fiscal Year 1966 programme.



WPG 715

1963, United States Coast Guard, Official

Official Statement
This is the latest artist's conception of the diesel-gas turbine powered high endurance cutter which the U.S. Coast Guard started building in 1964 as part of its fleet modernisation programme. She will be the longest Coast Guard cutter on record. The Coast Guard is putting 36,000 H.P. into propulsion machinery of half the weight used in the Service's present 6,000 H.P. vessels. Operating on diesel power alone, the new WPG will derive a cruising speed of 20 knots. On gas turbine power she will clip the water at a top speed of 29 knots. Her design features a helicopter flight deck, forward of which are twin exhaust

stacks joined with a bar at the top. The bar will hold radar antenna and other electronic gear. The new cutter will be equipped with communications facilities of more modern and greater capacity than in use now, a large oceanographic laboratory, and modern instruments for gathering weather data. Her rescue equipment will include gas turbine powered motor lifeboats. Long-range plans envisage the first completed vessel to serve as a prototype for a construction programme which may include three to four new vessels a year until a fleet of thirty-six 350 footers have been acquired.

6 "Campbell" Class (WPG)

WPG

- 31 BIBB (ex- George M. Bibb)
- 32 CAMPBELL (ex-George W. Campbell)
- 33 DUANE (ex-William J. Duane)
- 35 INGHAM (ex-Samuel D. Ingham)
- 36 SPENCER (ex-John C. Spencer)
- 37 TANEY (ex-Roger B. Taney)

- Displacement: 2,216 tons standard (2,785 tons full load)
- Dimensions: 308 (w.l.), 327 (o.a.)×41×14½ feet
- Guns: 1—5 inch, 38 cal., 2—40 mm. AA. (see Gunnery notes)
- A/S weapons: Hedgehog, K-guns
- Machinery: Westinghouse geared turbines. 2 shafts. S.H.P.: 6,200=20.5 kts. (20 kts. sea speed)
- Boilers: 2 Babcock & Wilcox
- Oil fuel: 572 tons
- Radius: 8,000 miles at 12.5 kts., 12,300 miles at 11 kts.
- Complement: 202

General
Rated as 327 ft. Cutters. Employed as ocean station ships. All built by Philadelphia Navy Yard except *Bibb* by Charleston Navy Yard and *Spencer* by New York Navy Yard. Named after former Secretaries of the Treasury. Second World War Loss:—*Alexander Hamilton*, WPG 34



CAMPBELL

1965, United States Coast Guard, Official

Gunnery
All this class originally mounted two 5-inch guns. The 20 mm. AA. guns were removed in 1957. The 40 mm. AA. guns are to be replaced by 50 cal. machine guns.
Photographs
A port bow oblique aerial view of *Taney* appears in the 1956-57 to 1960-61 editions, and a port broadside view of *Campbell* before alteration in the 1961-62 to 1964-65 editions.

Name	Launched	Completed
Bibb	14 Jan. 1937	10 Mar. 1937
Campbell	3 June 1936	22 Oct. 1936
Duane	3 June 1936	16 Oct. 1936
Ingham	3 June 1936	6 Nov. 1936
Spencer	6 Jan. 1936	13 May 1937
Taney	3 June 1936	19 Dec. 1936

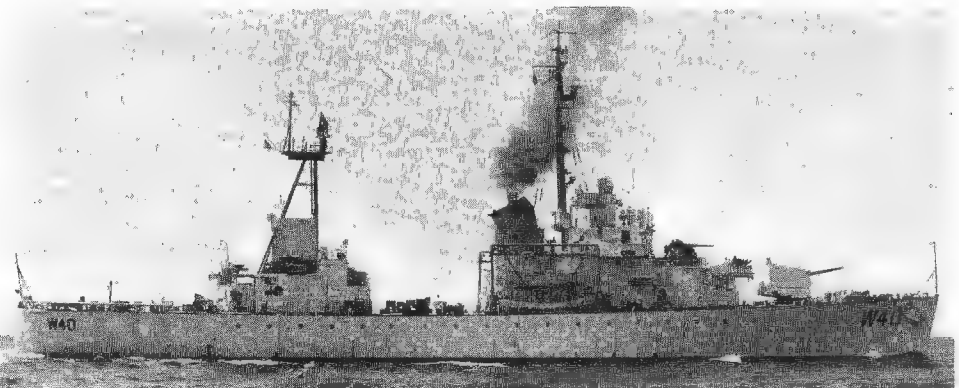
12 "Owasco" Class (WPG)

WPG

- 48 ANDROSCOGGIN
- 41 CHAUTAUQUA
- 64 ESCANABA (ex-Otsego)
- 66 KLAMATH
- 69 MENDOTA
- 67 MINNETONKA (ex-Sunapee)
- 39 OWASCO
- 70 PONTCHARTRAIN (ex-Okeechobee)
- 42 SEBAGO (ex-Wachusett)
- 44 WACHUSETT (ex-Huron)
- 40 WINNEBAGO
- 65 WINONA

- Displacement: 1,563 tons standard (1,913 tons full load)
- Dimensions: 254 (o.a.)×43×16½ feet
- Guns: 1—5 inch, 38 cal., 4—40 mm. AA. (see Gunnery notes)
- A/S weapons: Hedgehog, K-guns (see Anti-Submarine notes)
- Machinery: Westinghouse geared turbines. Electric drive. S.H.P.: 4,000=18 kts.
- Boilers: 2
- Oil fuel: 350 tons
- Radius: 14,800 miles at 11 kts.
- Complement: 140

General
Rated as 255 ft. Cutters. Employed as ocean station ships. All built by Western Pipe & Steel Co., except *Mendota* and *Pontchartrain*, by Coast Guard Shipyard. Named after Indian tribes.
Photograph
A starboard broadside surface view of *Sebago* appears in the 1955-56 to 1960-61 editions, and a starboard broadside aerial view of *Chautauqua* in the 1961-62 to 1964-65 editions.
Disposal
Iroquois, WPG 43, of this class, which was decommissioned to reserve in 1955 and since then had been in storage, was disposed of in 1965.



WINNEBAGO

1965, United States Coast Guard, Official

Gunnery
The 20 mm. AA. guns and depth charge racks were removed in 1957. The 40 mm. AA. guns are to be replaced by 50 cal. machine guns.

Anti-Submarine
Anti-submarine weapons were re-installed in 1950. *Winona* and others were in 1965 equipped with ASW torpedo launchers.

Name	Launched	Completed	Name	Launched	Completed
Androscoggin	16 Sep. 1945	20 Sep. 1946	Owasco	18 June 1944	18 May 1945
Chautauqua	14 May 1944	4 Aug. 1945	Pontchartrain	29 Apr. 1944	28 July 1945
Escanaba	25 Mar. 1945	20 Mar. 1946	Sebago	28 May 1944	20 Sep. 1945
Klamath	2 Sep. 1945	5 Sep. 1946	Wachusett	5 Nov. 1944	23 Mar. 1946
Mendota	29 Feb. 1944	2 June 1946	Winnebago	2 July 1944	21 June 1945
Minnetonka	21 Nov. 1945	20 Sep. 1946	Winona	22 Apr. 1945	15 Aug. 1946

Patrol Gunboats—continued

18 "Casco" Class (WAVP)
Former Navy Seaplane Tenders

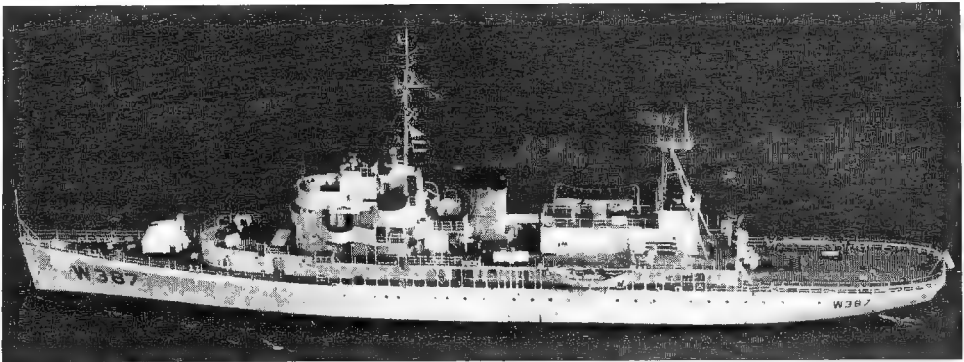
- WAVP**
370 CASCO (ex-AVP 12)
371 MACKINAC (ex-AVP 13)
372 HUMBOLDT (ex-AVP 21)
373 MATAGORDA (ex-AVP 22)
374 ABSECON (ex-AVP 23)
375 CHINCOTEAGUE (ex-AVP 24)
376 COOS BAY (ex-AVP 25)
377 ROCKAWAY (ex-AVP 29)
378 HALF MOON (ex-AVP 26)
379 UNIMAK (ex-AVP 31)
380 YAKUTAT (ex-AVP 32)
381 BARATARIA (ex-AVP 33)
382 BERING STRAIT (ex-AVP 34)
383 CASTLE ROCK (ex-AVP 35)
384 COOK INLET (ex-AVP 36)
385 DEXTER (ex-Biscayne, AGC 18, ex-AVP 11)
386 McCULLOCH (ex-Wachapreague, ex-AGP 8, ex-AVP 56)
387 GRESHAM (ex-Willoughby, ex-AGP 9, ex-AVP 57)

Displacement: 1,766 tons standard (2,800 tons full load)
Dimensions: 310½ (o.a.)×41×13½ feet
Guns: 1—5 inch, 38 cal., 4—40 mm. AA. (see Gunnery)
A/S weapons: Hedgehog, 4 K-guns
Machinery: Diesel, B.H.P.: 6,080=18 kts. (see General)
Complement: 215

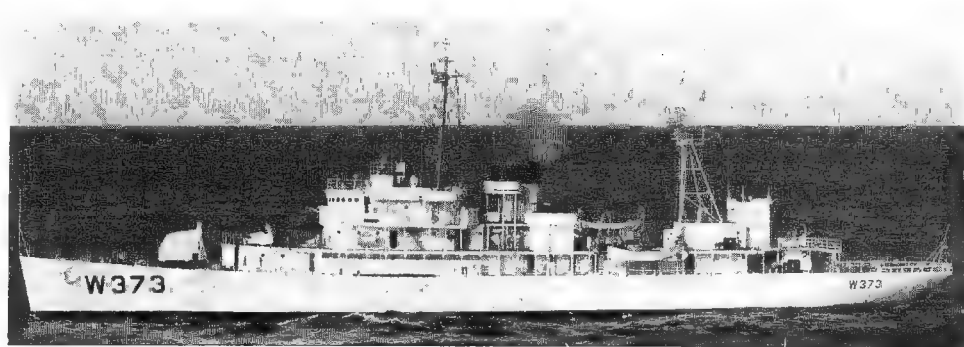
General
Rated as 311 ft. Cutters. All except Dexter, Gresham and McCulloch are AVPs on loan from the U.S. Navy. Employed as ocean station ships. Dexter was refitted with four new Fairbanks-Morse diesels in 1957 and was recommissioned in July 1958 for duty as West Coast Training Ship. Unimak is East Coast Training Ship.

Gunnery
The 20 mm. AA. guns were removed in 1957. The 40 mm. guns are to be replaced by .50 cal. machine guns.

Photographs
A photograph of Half Moon appears in the 1952-53 to 1957-58 editions, of Mackinac in the 1954-55 to 1957-58 editions and of Rockaway in the 1958-59 to 1964-65 editions.



GRESHAM 1965, United States Coast Guard, Official



MATAGORDA 1963, United States Coast Guard, Official

Name	Builders	Launched	Completed	Name	Builders	Launched	Completed
Absecon	Lake Washington Shipyard	8 Mar. 1942	1942	Gresham	Lake Washington Shipyard	21 Aug. 1942	1944
Barataria	Lake Washington Shipyard	2 Oct. 1943	1944	Half Moon	Lake Washington Shipyard	12 July 1942	1942
Bering Strait	Lake Washington Shipyard	15 Jan. 1944	1944	Humboldt	Boston Naval Shipyard	17 Mar. 1941	1941
Casco	Puget Sound Naval Shipyard	15 Nov. 1941	1942	McCulloch	Lake Washington Shipyard	10 July 1942	1944
Castle Rock	Lake Washington Shipyard	11 Mar. 1944	1944	Mackinac	Puget Sound Naval Shipyard	15 Nov. 1941	1942
Chincoteague	Lake Washington Shipyard	15 Apr. 1942	1942	Matagorda	Boston Naval Shipyard	18 Mar. 1941	1941
Cook Inlet	Lake Washington Shipyard	13 May 1944	1944	Rockaway	Associated Shipbuilders	14 Feb. 1942	1942
Coos Bay	Lake Washington Shipyard	15 May 1942	1942	Unimak	Associated Shipbuilders	27 May 1942	1942
Dexter	Puget Sound Naval Shipyard	15 Nov. 1941	1941	Yakutat	Associated Shipbuilders	2 July 1942	1942

MEDIUM ENDURANCE CUTTERS

11+5 New Construction.
"Reliance" Class (WPC)

- | | |
|--|---|
| WPC
618 ACTIVE
619 CONFIDENCE
622 COURAGEOUS
624 DAUNTLESS
616 DILIGENCE | WPC
615 RELIANCE
620 RESOLUTE
623 STEADFAST
621 VALIANT
625 VENTUROUS
617 VIGILANT |
|--|---|

Displacement: 930 tons standard
Dimensions: 210½ (o.a.)×34×10½ feet
Guns: 1—3 inch, 50 cal. forward
Aircraft: HH—52A helicopter
Machinery: 2 diesels and 2 gas turbines, 2 shafts, B.H.P.: 5,000—19 kts. (max.) see Engineering
Radius: 5,000 miles at 15 kts. (cruising)
Complement: 64 (7 officers, 57 men)

General
A new class of cutters designed by the U.S. Coast Guard. Diligence and Reliance were authorised under the Fiscal Year 1962 programme and ordered in April 1962 from Todd Shipyard, Houston, Texas. Vigilant was authorised in the Fiscal Year 1963 programme and ordered from the same shipyard. Primarily intended for search and rescue duties, the superstructure is arranged on three levels forward of midship, affording the wheelhouse 360 degrees visibility. Another feature is a flight deck aft suitable for carrying the Coast Guard's newest type of rescue helicopter. A streamlined tower type mast with platform, yard and gaff accommodates the navigation and signal lights and antennae. Conspicuously missing is the conventional funnel, which is eliminated by the use of an exhaust vent in the stern. Equipped with facilities for ocean towing of vessels up to 10,000 tons gross. The crew accommodation, for a total of 8 officers and 58 enlisted men, is so modern in design and comfort as to be comparable with that in the most modern merchant ships. Air conditioned throughout. These are the first of a proposed 29 ships: Reliance was laid down on 29 Sep. 1962, launched on 25 May 1963, and commissioned on 20 June 1964. Diligence was launched on 20 July 1963 and commissioned on 26 Aug. 1964. Vigilant



RELIANCE WPC 615 1964, United States Coast Guard, Official

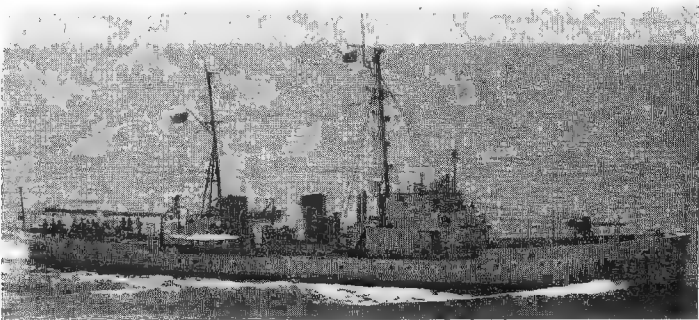
was launched on 23 Dec. 1963 and commissioned on 3 Oct. 1964. Confidence was laid down on 4 Aug. 1964 at Coast Guard Yard. Active and Confidence, authorised under the Fiscal Year 1964 programme, were awarded to Christy Corporation. WPC 620, WPC 621, WPC 622, WPC 623, WPC 624 and WPC 625 were authorised under the Fiscal Year 1965 programme, and WPC 626, 627, 628, 629 and 630 were requested in the 1966 programme.

Nomenclature
Other names considered or selected for this class included Endurance. The name Resolute is being reconsidered.

Engineering
Each of the twin screws is driven by a combination 1,500 H.P. turbo-charged diesel and 1,000 H.P. gas turbine (same type of gas turbine as in CG 82314). Adjustable pitch propellers for reverse. Normal cruising on diesels, top speed on gas turbines. Sustained speed of 18 knots. Unmanned engine room.

Reclassification
Designed and the first units built as Patrol Craft (WPC) but the vessels of this type were officially redesignated as Medium Endurance Cutters in 1964.

Medium Endurance Cutters—continued

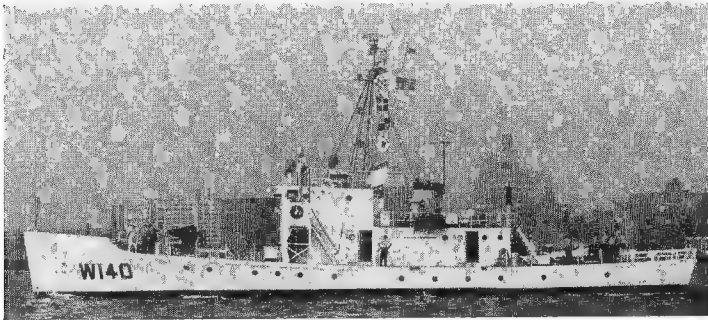


ARIADNE 1965, United States Coast Guard, Official

3 "Argo" Class (WPC)

ARIADNE 101	AURORA 103	TRITON 116
Displacement:	337 tons	
Dimensions:	165 (o.a.)×25½×9½ feet	
Guns:	1—3 inch, 50 cal.	
Machinery:	Winston diesels, 2 shafts. B.H.P.: 1,340—16 kts.	

General
Rated as 165 ft. Cutters. Built of steel. All launched in 1931-34. *Pandora* and *Perseus* were sold in 1959, and *Nemesis* and *Nike* were deleted from the list in 1965. A photograph of *Aurora* appears in the 1952-53 to 1960-61 editions.



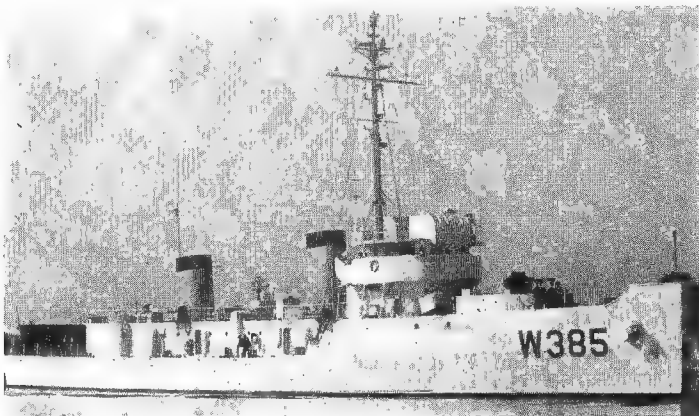
GENERAL GREENE 1965, United States Coast Guard, Official

11 "Active" Class (WSC)

AGASSIZ 126	CARTIGAN 132	GEN. GREEN 140	McLANE 146
ALERT 127	EWING 137	KIMBALL 143	MORRIS 147
CAHOONE 131		LEGARE 144	YEATON 156
Displacement:	220 tons		
Dimensions:	125 (o.a.)×23½×9 feet		
Guns:	1—40 mm. AA.		
Machinery:	Diesel, 2 shafts. B.H.P.: 800=13 kts.		

General
Rated as 125 ft. Cutters. Built of steel. All launched in 1926-27. All re-engined in 1939-42. *Bonham* was disposed of in 1959, *Diligence* in 1961, *Active*, *Marion* and *Travis* in 1962, *Boutwell* in 1963, *Cayahoga* in 1964 and *Frederick Lee* in 1965. A photograph of *Agassiz* appears in the 1953-54 to 1959-60 editions, and of *Legare* in the 1960-61 to 1964-65 editions.

TRAINING CUTTER (WTR)



TANAGER 1964, United States Coast Guard, Official

1 Ex-U.S.N. MSF Type

WTR 385 TANAGER (ex-U.S.S. MSF 385)	
Displacement:	890 tons standard (1,250 tons full load)
Dimensions:	215 (w.l.), 221 (o.a.)×32½×10½ feet
Machinery:	Diesel-electric, 2 shafts. B.H.P.: 3,532=18 kts.
Complement:	5 officers, 34 men (80 reserve trainees)

General
Former fleet minesweeper, large steel-hulled type, acquired from the U.S. Navy in 1964 as a Coast Guard Reserve training ship, at Yorktown, Va. Her minesweeping equipment was removed and a living compartment added. Built by American Shipbuilding Co., Lorain, Ohio. Laid down on 29 Mar. 1964. Launched on 9 Dec. 1944.
(The escort *Lamar*, PCE 899, was acquired from the U.S. Navy in 1965, for use as a training ship, see later page.)

PATROL CRAFT (WPB)



CAPE PROVIDENCE 1963, United States Coast Guard, Official

35 "95 ft" Steel Type

CAPE CARTER	95309	CAPE JELLISON	95317
CAPE CORAL	95301	CAPE KIWANDA	95329
CAPE CORWIN	95326	CAPE KNOX	95312
CAPE CROSS	95321	CAPE MORGAN	95313
CAPE CURRENT	95307	CAPE NEWAGEN	95318
CAPE DARBY	95323	CAPE PORPOISE	95327
CAPE FAIRWEATHER	95314	CAPE PROVIDENCE	95335
CAPE FALCON	95330	CAPE ROMAIN	95319
CAPE FLORIDA	95325	CAPE ROSIER	95333
CAPE FOX	95316	CAPE SABLE	95334
CAPE GEORGE	95306	CAPE SHOALWATER	95324
CAPE GULL	95304	CAPE SMALL	95300
CAPE HATTERAS	95305	CAPE STARR	95320
CAPE HEDGE	95311	CAPE STRAIT	95308
CAPE HENLOPEN	95328	CAPE TRINITY	95331
CAPE HIGGON	95302	CAPE UPRIGHT	95303
CAPE HORN	95322	CAPE WASH	95310
		CAPE YORK	95332
CG 95321—95335	CG 95312—95314, 95316—95320	CG 95300—95311	
"C" Class (built 1958-59)	"B" Class (built 1955-56)	"A" Class (built 1953)	
Displacement:	106 tons (B), 95 tons (A), 87 tons (C) standard		
Dimensions:	95 (o.a.) × 19 × 6 (B, 7) feet		
Guns:	"C" Class: 1—20 mm.		
	"B" Class: 1—40 mm., D.C.T. rocket launchers		
	"A" Class: 2—20 mm., D.C.T. rocket launchers		
Machinery:	4 diesels, 2 shafts (2 engines in tandem each shaft)		
	B.H.P.: 2,200=21 kts. (max.)		
Radius:	1,500 miles cruising range		
Complement:	15 ("A" and "B" classes), 13 ("C" class)		



POINT THATCHER (gas turbines). 1962, United States Coast Guard, Official

50+20 "82 ft" Steel Type

POINT ARDEN 82309	POINT HERRON 82318
POINT ARENA 82346	POINT HIGHLAND 82333
POINT BAKER 82342	POINT HOPE 82302
POINT BANKS 82327	POINT HUDSON 82322
POINT BARROW 82348	POINT JEFFERSON 82306
POINT BATAN 82340	POINT JUDITH 82345
POINT BONITA 82347	POINT KENNEDY 82320
POINT BRIDGE 82338	POINT LEAGUE 82304
POINT CAUTION 82301	POINT LEDGE 82324
POINT CHICO 82339	POINT LOMAS 82321
POINT CLEAR 82315	POINT LOOKOUT 82341
POINT COMFORT 82317	POINT MARONE 82331
POINT COUNTESS 82335	POINT MAST 82316
POINT CYPRESS 82326	POINT ORIENT 82319
POINT DIVIDE 82337	POINT PARTBRIDGE 82305
POINT DUME 82325	POINT ROBERTS 82332
POINT ELLIS 82330	POINT SLOCUM 82313
POINT ESTERO 82344	POINT SPENCER 82349
POINT FRANKLIN 82350	POINT SWIFT 82312
POINT GAMMON 82328	POINT THATCHER 82314
POINT GARNET 82310	POINT VERDE 82311
POINT GLASS 82336	POINT WELCOME 82329
POINT GLOVER 82307	POINT WELLS 82343
POINT GRACE 82323	POINT WHITE 82308
POINT GREY 82324	POINT YOUNG 82303

PATROL CRAFT (WPB)—continued



POINT LEAGUE 1963, United States Coast Guard, Official

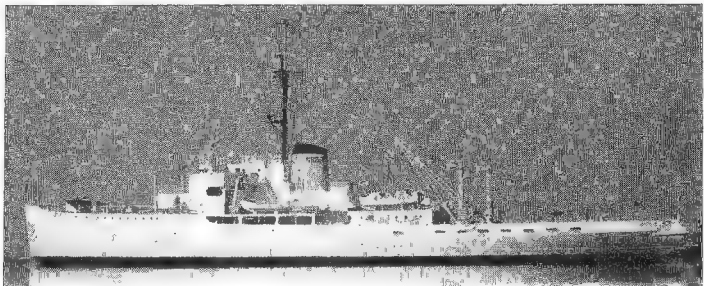
50+20 "82 ft" Steel Type—continued

CG 82332—82344 "C" class (built 1962-63)	CG 82318—82331 "B" Class (built 1961)	CG 82301—82317 "A" Class (built 1960-61)
Displacement:	64 tons	
Dimensions:	78½ (w.l.), 83 (o.a.) × 17½ × 5½ feet	
Guns:	1—20 mm.	
Machinery:	2 diesels, 2 shafts. B.H.P.: 1,200=17 kts. (see Notes)	
Complement:	10	

General
Rated as 82 ft. Cutters. Designed and built at Coast Guard Yard, for law enforcement, search and rescue. Steel hulls, unmanned engine room controlled from the bridge, power steering and air conditioning. "C" Class modifications (also 82318) include increase in B.H.P. to 1,600 and speed to 23 kts. In addition to diesels, *Point Thatcher* has 2 Saturn gas turbines of 1,100 H.P. each, giving over 20 knots. Controllable pitch propellers. In June, 1965 seventeen of these craft were deployed with the Navy and transferred to duty in Vietnam (they have a double action gun consisting of a 50 cal. machine gun mounted on top of an 81 mm. mortar, replacing the former 20 mm. gun). As a result 17 replacement cutters are in the future construction programme plus nine already planned. Of the latter, *Point Arena*, *Point Barrow*, *Point Bonita*, *Point Franklin*, *Point Judith* and *Point Spencer* are being built under the Fiscal Year 1965 Programme by Martinac S.B., Tacoma, Wash., and 82531, 82352 and 82353 in the 1966 programme.

Nomenclature
CG 82301-82344 were assigned 'Point' names in Jan. 1964, and redesignated patrol craft instead of patrol boats. But three of the names initially promulgated in the officially proposed list were not assigned: 82318 became *Point Herron* instead of *Point Diablo*, 82320 became *Point Kennedy* instead of *Point Lull*, and 82321 became *Point Lomas* instead of *Point Possession*.

ICEBREAKERS (WAGB)

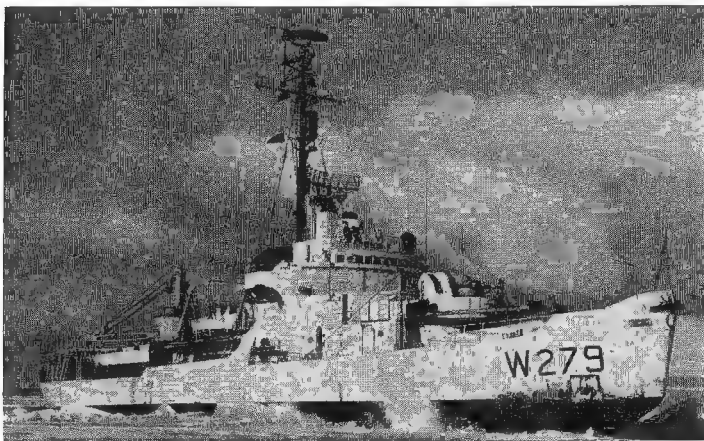


MACKINAW Added 1962, United States Coast Guard, Official

WAGB 83 MACKINAW (ex-Manitowac)

Displacement:	5,252 tons standard (8,775 tons full load)
Dimensions:	290 (o.a.) × 75 × 19 (max.) feet
Aircraft:	1 helicopter
Machinery:	Diesel, with electric drive. 3 shafts (1 forward, 2 aft)
B.H.P.:	10,000=16 kts.
Radius:	6,000 miles at cruising speed

General
Built by Toledo Shipbuilding Co., Ohio. Laid down on 20 Mar. 1943. Launched on 6 Mar. 1944. Commissioned on 20 Dec. 1944. Completed in Jan. 1945. Specially designed and constructed with 1½ in. plating for service as icebreaker on the Great Lakes. Equipped with two 12-ton cranes. Clear area for helicopter is provided on the quarter deck. Machine guns were removed early in 1962.

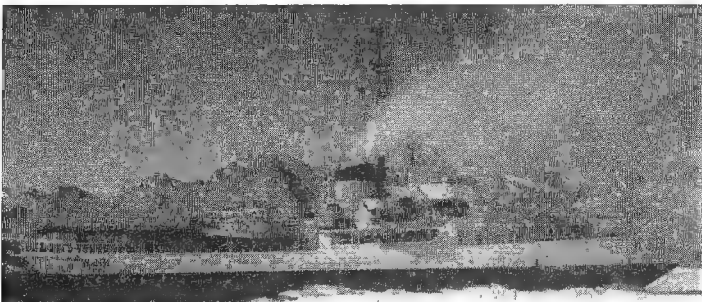


EASTWIND (see next column) 1965, United States Coast Guard, Official

ICEBREAKERS—continued



NORTHWIND (with new retractable helicopter hangar) 1964, United States Coast Guard, Official



WESTWIND: (striking 18 feet thick ice' floe) 1964, United States Coast Guard, Official

4+3 "Wind" Class

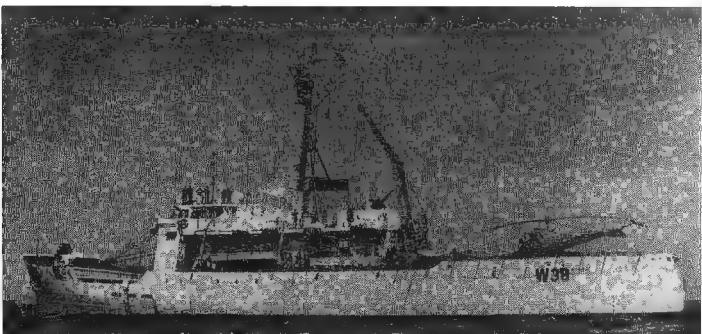
EASTWIND	EDISTO	NORTHWIND	WESTWIND
Displacement:	3,500 tons standard (6,515 tons full load)		
Dimensions:	250 (pp.), 269 (o.a.) × 63½ × 29 feet		
Aircraft:	2 H-19 or 2 H-52 helicopters		
Guns:	Eastwind: 2—3 inch, 50 cal. Northwind: 2—5 inch, 38 cal. Edisto and Westwind: 1—5 inch, 38 cal.		
Machinery:	6 diesel-electric. 2 shafts. B.H.P.: 13,300=16 kts.		
Radius:	11,000 miles		

General
Construction is entirely welded, with double hull and exceptionally heavy plating designed to crush 9 ft. thick ice. Forward shafts were removed. All ships have helicopter platform aft. *Northwind* has experimental telescopic helicopter hangar. *Northwind* (first ship of that name), *Southwind* (*Severni Yeter*) and *Westwind* (*Severni Polius*) were lent to the Soviet Navy in 1945. *Southwind* was returned in 1950 (see earlier page, U.S. Navy), other two in Dec. 1951. The four 40 mm. guns in *Northwind* and *Westwind* and the four 20 mm. guns in *Eastwind* were removed in 1962.

Transfers
Edisto, AGB 2 (ex-AG 89), photograph in the 1956-57 and 1957-58 editions, was transferred from the U.S. Navy on 20 Oct. 1965. It was officially announced in June 1965 that all five of the U.S. Navy icebreakers would be transferred to the Coast Guard within the next 16 months. This is to consolidate a responsibility previously divided between the U.S.N. and the U.S.C.G. *Statensland* (ex-*Northwind*), AGB 5 (ex-WAGB; 278) will be transferred on 1 Feb. 1966; *Glacier*, AGB 4, on 30 June 1966; *Atka* (ex-*Southwind*), AGB 3 (ex-WAGB 280) on 20 Oct. 1966; and *Burton Island*, AGB 1 (ex-AG 88) on 1 Nov. 1966.

No.	Name	Builders	Launched
WAGB 279	Eastwind	Western Pipe & Steel Co.	6 Feb. 1943
WAGB 282	Edisto		29 May 1946
WAGB 281	Northwind		25 Feb. 1945
	Westwind		31 Mar. 1943

LIGHT ICEBREAKER (WAG)



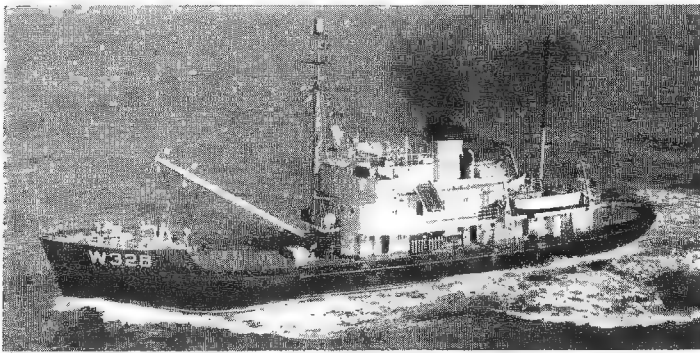
STORIS 1965, United States Coast Guard, Official

WAG 38 STORIS (ex-Eskimo)

Displacement:	1,715 tons
Dimensions:	230 (o.a.) × 43 × 15 feet
Guns:	1—3 inch, 50 cal. 2 Rocket launchers
Aircraft:	2 H-13 helicopters or 1 H-19 or 1 H-52
Machinery:	Diesel-electric. 1 shaft. B.H.P.: 1,800=13.5 kts.

General
Built by Toledo Shipbuilding Co., Ohio. Launched in 1942. Ice patrol tender. Helicopter platform aft. Strengthened for ice navigation. Employed on Alaskan service. Search, rescue, and law enforcement are primary duties. Makes supply runs to isolated Coast Guard installations within her patrol area.

SEAGOING TENDERS (WLB)



MAGNOLIA

1962, United States Coast Guard, Official

5 "Heather" Class (Former Navy Minelayers)

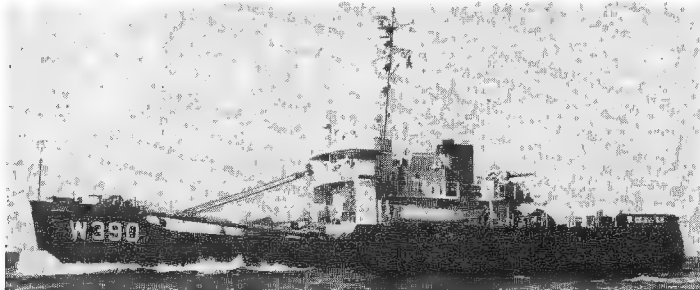
HEATHER (ex-Obstructor) **JONQUIL** (ex-Bastion) **WILLOW** (ex-Picket)
IVY (ex-Barbican) **MAGNOLIA** (ex-Barricade)

Displacement: 1,054 tons standard (1,250 tons full load)
 Dimensions: 188½ (o.a.) × 37 × 12 feet
 Machinery: Triple expansion, 2 shafts, 1 H.P.: 1,200=12 kts.

General

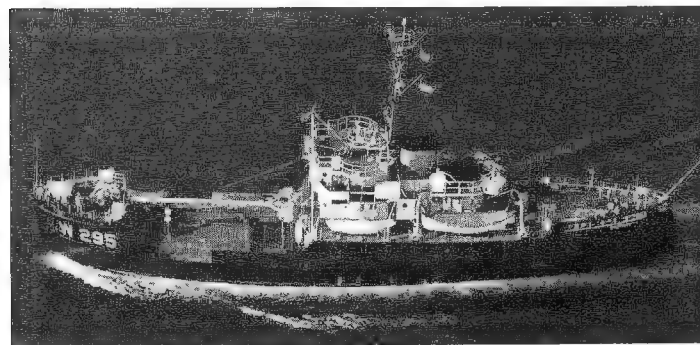
Ex-Army mineplanters, ex-U.S. Navy auxiliary minelayers, ACM 7, 5, 6, 3 and 8. Launched in 1942. WLB 331, 329, 330, 328, 332, respectively. Redesignated Seagoing Tenders, WLB instead of Buoy Tenders, WAGL on 1 Jan. 1965.

Note: All U.S. Coast Guard Tenders are officially listed in order of length.



BLACKHAW

1965, United States Coast Guard, Official



EVERGREEN (now painted white)

1963, U.S.C.G.

38 "Cactus" and "Iris" Classes

20 Marine Iron & S.B. Co., Duluth
 388 BASSWOOD
 390 BLACKHAW (18 June 1943)
 391 BLACKTHORN (20 July 1943)
 306 BUTTONWOOD (28 Nov. 1942)
 270 CACTUS (25 Nov. 1941)
 300 CITRUS (15 Aug. 1942)
 292 CLOVER (1942)
 301 CONIFER (3 Oct. 1942)
 277 COWSLIP (1942)
 295 EVERGREEN
 394 HORNBEAM (15 Aug. 1943)
 305 MESQUITE (14 Nov. 1942)
 308 PAPAWE
 307 PLANETREE
 401 SASSAFRAS (1943)
 402 SEDGE (1943)
 403 SPAR (2 Nov. 1943)
 404 SUNDEW (8 Feb. 1944)
 405 SWEETBRIAR (30 Dec. 1943)
 309 SWEETGUM (1943)

17 Zenith Dredge Co., Duluth
 406 ACACIA (ex-Thistle, 7 Apr. 1944)
 62 BALSAM (1942)
 389 BITTERSWEET (1943)
 392 BRAMBLE (1943)
 393 FIREBUSH (1943)
 290 GENTIAN (1942)
 395 IRIS (10 Mar. 1944)
 291 LAUREL (4 Aug. 1942)
 302 MADRONA (11 Nov. 1942)
 396 MALLOW (1943)
 397 MARIPOSA (7 Jan. 1944)
 399 SAGEBRUSH (30 Sep. 1943)
 400 SALVIA (15 Sep. 1943)
 296 SORRELL (28 Sep. 1942)
 303 TUPELO (28 Nov. 1942)
 289 WOODBINE
 407 WOODBRUSH (1944)

1 Coast Guard Shipyard, Curtis Bay
 297 IRONWOOD (Mar. 1943)

Displacement: 935 tons standard (1,025 tons full load)
 Dimensions: 180 (o.a.) × 37 × 14 feet
 Guns: 1—3 inch, 50 cal.: rocket launchers*
 Machinery: Diesel electric. B.H.P.: 1,200=12 kts. (Citrus, Clover, Conifer, Cowslip, Evergreen, Tupelo, Woodbine, B.H.P.: 1,000=11 kts.). Some have Sundew diesels of 1,800 B.H.P.

General

Builders and launch dates above. Redbud was lent to the Military Sea Transportation Service as an AKL (Cargo Ship Light). Evergreen is used as oceanographic vessel, and designated WAGO; she was the International Ice Patrol Vessel for 1963.

Engineering

Cowslip was fitted with controllable pitch transverse bow propeller in 1961.

Photographs

Photographs of Cactus and Firebush appear in the 1959-60 to 1964-65 editions.

*3 inch guns and ASW equipment to be removed and .50 cal M.G. to be installed, except in Citrus, Cowslip, Evergreen, Sedge and Sorrell.

COASTAL TENDERS (WLM)



WALNUT

1963, United States Coast Guard, Official

3 "Hollyhock" Class

FIR

Displacement: 989 tons
 Dimensions: 175 × 32 × 12 feet
 Machinery: Diesel Reduction, 2 shafts, B.H.P.: 1,350=12 kts.

HOLLYHOCK

WALNUT

General

Nos. WLM 212, 220 and 252, respectively. Launched in 1937 (Hollyhock) and 1939 (Fir and Walnut). Walnut was converted and re-engined by Willamette Iron & Steel Co., Portland, Oregon, in 1958. This class and following were redesignated Coastal Tenders, WLM, instead of Buoy Tenders, WAGL (effective 1 Jan. 1965).

JUNIPER

Displacement: 794 tons
 Dimensions: 177 × 32½ × 9½ feet
 Machinery: Diesel, with electric drive, 2 shafts, B.H.P.: 900=11 kts.

General

Launched on 18 May 1940. No. WLM (ex-WAGL) 224. Redesignated WLM on 1 Jan. 1965.

ARBUTUS

Displacement: 960 tons
 Dimensions: 175 × 32 × 12½ feet
 Machinery: Reciprocating, 2 shafts, I.H.P.: 1,000=11 kts.

General

Launched in 1934. No. WLM (ex-WAGL) 203. Redesignated WLM on 1 Jan. 1965.

Disposals

Hemlock was decommissioned in 1958 and sold. Violet was decommissioned in 1962, and sold in 1963.

MISTLETOE

Displacement: 1,040 tons
 Dimensions: 173 × 34 × 11 feet
 Machinery: Reciprocating, 2 shafts, I.H.P.: 1,100=11 kts.

General

Launched in 1939. No. WLM (ex-WAGL) 237. Redesignated WLM on 1 Jan. 1965.

LILAC

Displacement: 770 tons
 Dimensions: 172 × 32 × 8½ feet
 Machinery: Reciprocating, 2 shafts, I.H.P.: 1,000=11½ kts.

General

Launched in 1933. No. WLM (ex-WAGL) 227. Redesignated WLM on 1 Jan. 1965.



RED WOOD

1965, United States Coast Guard, Official

3 "Red Wood" Class

RED BEECH 686

RED BIRCH 687

RED WOOD 685

Displacement: 471 tons standard
 Dimensions: 157 (o.a.) × 32 × 6 feet
 Machinery: 2 diesels, 2 shafts, B.H.P.: 1,800=14 kts.
 Radius: 3,000 miles at 12 kts. cruising range
 Complement: 32

General

Redwood was laid down in 1963 and commissioned on 4 Aug. 1964 at the Coast Guard Yard, Curtis Bay, Md., where Red Beech was commissioned on 20 Nov. 1964 and Red Birch was commissioned on 7 June 1965. The largest vessels built at the Coast Guard Yard since the Second World War. Controllable pitch propellers. Bow thruster unit to give high manoeuvrability. Hull reinforced for light icebreaking. Steering and engine control on bridge wings as well as in pilothouse.

Disposals

Of the two "Hawthorne" class coastal tenders, Hawthorne, WLM 215 (ex-WAGL 215) was decommissioned on 24 July 1964, and Oak, WLM 239 (ex-WAGL 239) on 1 Sep. 1964. Both were officially deleted from the list in 1965. They were replaced by Red Beech and Red Wood, see above. The larger but older Cedar was sold in June 1955.

8 "White" Class

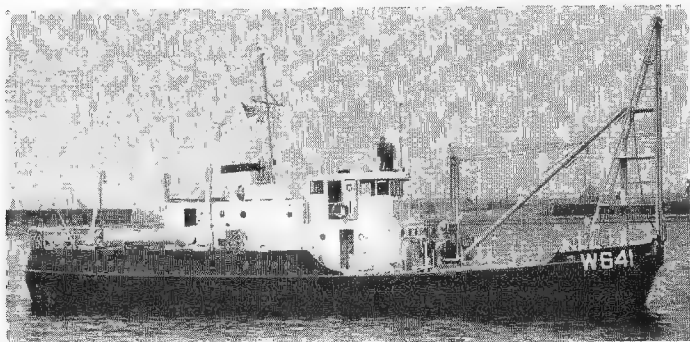
WHITE ALDER
WHITE BUSH
WHITE HEATHWHITE HOLLY
WHITE LUPINE
WHITE PINEWHITE SAGE
WHITE SUMAC

Displacement: 435 tons
 Dimensions: 133 (o.a.) × 30 × 10 feet
 Machinery: Diesel, B.H.P.: 600=10 kts.

General

All launched in 1943. All eight ships are former U.S. Navy YFs, adapted for the Coast Guard.

INLAND TENDERS, LARGE (WLI)



AZALEA 1959, United States Coast Guard, Official

10 "100 ft" Class

AZALEA (18 Feb. 1958) **BUCKTHORN** **PRIMROSE**
BARBERRY (14 Nov. 1942) **BRIER** **RAMBLER**
BLUEBELL **COSMOS** (11 Nov. 1942) **SMILAX**
VERBENA

Displacement: 178 tons
Dimensions: 100×24×4½ feet
Machinery: Diesel. 2 shafts. B.H.P.: 300=8.5 kts.
Complement: 15 (1 officer, 14 men)

General
Launch dates above. Eight are of "A" Class. *Azalea*, WLI 641, of "B" Class, laid down on 1 Oct. 1957 and commissioned on 23 May 1958, was built at the Coast Guard Yard, Curtis Bay, Maryland, to replace the old *Palmetto*. She is air-conditioned and has a pile driver in the bow. She cost \$500,000. *Buckthorn*, WLI 642, of "C" Class, built at Coast Guard Yard, commissioned on 17 July 1964.

HICKORY
Displacement: 400 tons
Dimensions: 131½×24½×9½ feet
Machinery: Reciprocating. I.H.P.: 500=12 kts.

General
Launched in 1933. This ship and following were redesignated Inland Tenders, Large, WLI, instead of Buoy Tenders, WAGL (effective 1 Jan. 1965).

TAMARACK
Displacement: 400 tons
Dimensions: 124×29×7½ feet
Machinery: Diesel, with electric drive. B.H.P.: 600=10 kts.

General
Launched in 1934, Redesignated Inland Tender, Large, WLI, on 1 Jan. 1965.

3 "Maple" Class

MAPLE **NARCISSUS** **ZINNIA**
Displacement: 342 tons (*Maple*, 350 tons)
Dimensions: 122×27×6½ feet
Machinery: Diesel. 2 shafts. B.H.P.: 400=10 kts.

General
All launched in 1939. Redesignated Inland Tenders, Large, WLI, on 1 Jan. 1965.

3 "Columbine" Class

COLUMBINE **LINDEN** **WISTARIA**
Displacement: 323 tons
Dimensions: 121½×25×6½ feet
Machinery: Diesel, with electric drive. B.H.P.: 240=9 kts.

General
Launched in 1931 (*Columbine* and *Linden*) and 1933 (*Wistaria*). A new engine for *Linden* was provided in the Fiscal Year 1959 programme.
All three ships are scheduled for decommissioning in the second quarter of Fiscal Year 1966.
Disposals
Of the two ships of the "Aster" class, *Thistle* decommissioned in 1957, and was sold in 1959, and *Aster* was decommissioned on 15 Aug. 1962, to be sold.

INLAND TENDERS, SMALL (WLI)

CLEMATIS (1944) } 93 tons **ELM** (1937), 69 tons
SHADBUSH (1944) }

General
Small buoy tenders. Redesignated Inland Tenders, Small, WLI, on 1 Jan. 1965.
Disposals
Blackrock was sold to the Government of Haiti in Nov. 1945. *Palmetto* was decommissioned in June 1958 and sold in 1958; she was replaced by the new *Azalea* (see "100-ft" class above) in 1958. *Rhododendron* was decommissioned for sale in 1958. *Poinciana* was decommissioned on 17 Aug. 1962. *Althea* on 10 Nov. 1962, *Beech* on 23 Jan. 1963, *Myrtle* on 8 Feb. 1963, *Birch* on 24 Feb. 1963, *Dahlia* on 9 Oct. 1964, *Cherry* on 1 Dec. 1964, *Blue-bonnet* and *Jasmine* on 18 Jan. 1965.

ANVIL (1962) **CLAMP** (1964) **HATCHET** (1966) **SPIKE** (1966)
AXE (1966) **HAMMER** (1962) **MALLET** (1962) **VICE** (1962)
SLEDGE (1962) **WEDGE** (1964)

General
Rated as Construction Tenders, Inland, Small (WLIC). All 145 tons.

RIVER TENDERS (WLR)

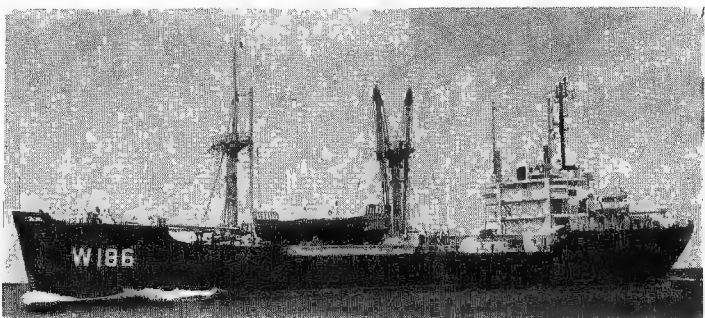
FOXGLOVE (1944) } 350 tons **DOGWOOD** (1942) } 230 tons
SUMAC (1944) } **FORSYTHIA** (1940) }
FERN (6 Nov. 1942) } **SYCAMORE** (1940) } 193 tons
GOLDENROD (1938) }
POPLAR (1939) }

General
Rated as River Tenders, Large (WLR). *Goldenrod* was rebuilt and re-engined in 1960. *Foxglove* was refitted in 1961 with three 400 B.H.P. diesels.

LANTANA (1943) 273 tons **OMACHITA** (1960)
OLEANDER (1940) 80 tons **CIMARRON** (1960)
GASCONADE (1964) } 139 tons
MUSKINGUM (1965) }
WYACONDA (1965) }

General
Rated as River Tenders, Small (WLR). *Chippewa*, under construction, is due for completion in the second quarter of Fiscal Year 1966.

SUPPLY SHIPS (WAK)



KUKUI 1965, United States Coast Guard, Official

I Ex-U.S.N. AK Type

WAK 186 KUKUI (ex-U.S.S. *Colquitt*, AK 174)

Displacement: 4,900 tons light (7,450 tons full load)
Measurement: 5,900 tons gross
Dimensions: 340 (w.l.), 338½ (o.a.)×50×21 feet
Machinery: Nordberg diesel. B.H.P.: 1,750=11.5 kts.
Radius: 14,500 miles

General
Former naval cargo ship based at Honolulu to perform logistic services for U.S. Coast Guard stations in the Pacific. Built in 1945 by Froemming Bros., Milwaukee, Wisc. Launched in 1944. Maritime Administration type CI-M-AVI. Appearance originally similar to that of *Courier*, see below.

I Ex-U.S.A. FS Type

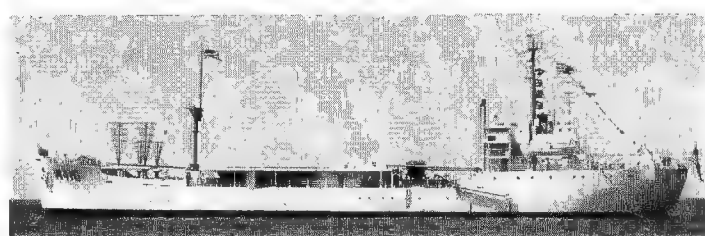
WAK 169 NETTLE (ex-FS 396)

Displacement: 728 tons
Dimensions: 176½ (o.a.)×32×10 feet
Machinery: Diesel. B.H.P.: 1,000=13 kts.

General
Ex-Army craft. Launched in 1944. *Trillium* was transferred to the U.S. Navy Reserve Fleet on 7 July 1955, for delivery to the Korean Navy in 1956. AKL 43 (ex-FS 219), which was to have undergone conversion for transfer from the Navy to the Coast Guard, was officially deleted from the list in 1965.

Trans fer
The cable layer, *Yamacraw*, WARC 333, was transferred to the U.S. Navy on a loan basis in 1959, see earlier page.

TRAINING SHIPS (WTR)



COURIER 1963, United States Coast Guard, Official

I Ex-WAGR (ex-U.S.N. AK) Type

WTR (ex-WAGR) 410 COURIER (ex-Coastal Messenger, ex-U.S.S. *Doddridge*, AK 176)

Displacement: 5,800 tons standard (7,500 tons full load)
Measurement: 5,926 tons deadweight
Dimensions: 338½×50½×21 feet
Machinery: Diesel, direct drive. B.H.P.: 1,700=11 kts.
Radius: Approximately 14,500 miles

General
CI-M-AVI type, launched in 1945. Built as a naval cargo ship but not used by the Navy. Acquired by the U.S. Coast Guard from the U.S. Maritime Commission in 1951, fitted out as an overseas radio relay base, manned by the Coast Guard and operated for the United States Information Agency as a relay station for the "Voice of America" broadcasts from 7 Sep. 1952 until 17 May 1964. She was virtually a seagoing radio broadcasting station with transmitting equipment the most powerful of its kind ever installed in any vessel. She commissioned on 15 Feb. 1952 and began broadcasts on 7 Sep. 1952, being stationed at Island of Rhodes, Greece. She returned to the U.S.A. in 1964 and was decommissioned on 25 Aug. 1964, but was converted and recommissioned on 1 July 1965 and employed as a training "cutter" for the reserve at Yorktown, Va. Her special communication equipment has been removed.

Photographs
A port bow view of *Courier* appears in the 1952-53 to 1962-63 editions.

I Ex-U.S.N. PCE Type

WTR 899 LAMAR (ex-U.S.S. PCE 899)

Displacement: 640 tons standard (903 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.)×33×9½ feet
Guns: 1—3 inch, 50 cal. d.p.; 6—40 mm. AA. (3 twin). Original armament
Machinery: G.M. diesels, 2 shafts. B.H.P.: 2,000=15 kts.
Complement: 60 (5 officers, 55 men) Navy allowance. Accommodation for 9 officers, 90 men.

General
Former escort, 180 ft. steel type, acquired from the U.S. Navy in 1965, converted for use as Coast Guard Reserve training ship and commissioned in 1965. Built by Willamette Iron & Steel Corp., Portland, Oregon. Laid down 11 Jan. 1943. Launched on 11 Aug. 1943. Completed (first commission) on 17 Mar. 1945.

SAIL TRAINING SHIPS (WIX)



EAGLE 1965, United States Coast Guard, Official

I Ex-German Type (Auxiliary Barque)

EAGLE (ex-Horst Wessel) 327

Displacement: 1,634 tons (1,816 tons full load)
Dimensions: 265½ (pp.), 295½ (o.a.) × 39½ × 17 feet
Sail area: 21,351 sq. ft.
Height of masts: 150 feet
Speed: As high as 18 kts. under full sail alone
Machinery: Auxiliary diesel. 1 shaft. B.H.P.: 740 = 10 kts.
Oil fuel: 48 tons
Radius: 3,500 miles at 10 kts.
Complement: 280

General
Former German training ship for 200 naval cadets. Built by Blohm & Voss, Hamburg. Launched on 13 June 1936. Taken by the United States as part of reparations after the Second World War for employment in U.S. Coast Guard Practice Squadron. Taken over at Bremerhaven in Jan. 1946. Arrived at home port, New London, Conn. in July 1946. Has made several cruises to European waters to train C.G. cadets.

Class
Sister ship, *Albert Leo Schlageter*, was also taken by the U.S.A. in 1945 but was sold to Brazil in 1948 and re-sold to Portugal in 1962.

I Yacht Type

PETREL 70001

General
Sailing yacht built in 1938. Acquired on 1 July 1955. 70 feet. Coast Guard Academy, New London, Conn.

Disposal
The former WSC Class cutter *Cuyahoga*, assigned to the Reserve Training Center as a Training Ship for Officer Candidates, was deleted from the list in 1964.

LIGHT SHIPS (WLW)

General
Total 23, of which all are active. 17 are on Station assignments and six are relief lightships. Overall length: 97 to 149 feet. Eight decommissioned lightships were sold in 1955-56. WAL 511 was sold in 1959; WAL 505 sank after collision in 1960. WAL 534 (*Nantucket*) was re-engined in the 1960 Fiscal Year. WAL 504, WAL 508 and WAL 513 were decommissioned and placed in storage in 1959-60. WAL 515 was decommissioned in Nov. 1961, and WAL 510 in Nov. 1962. Four ships were decommissioned in Fiscal Year 1964 and three during Fiscal Year 1965. Three more are scheduled for decommissioning in Fiscal Year 1966. Remainder were redesignated WLW instead of WAL (effective 1 Jan. 1965).

AUXILIARY OCEAN TUGS (WATA)



MODOC 1965, United States Coast Guard, Official

2 "Modoc" Type

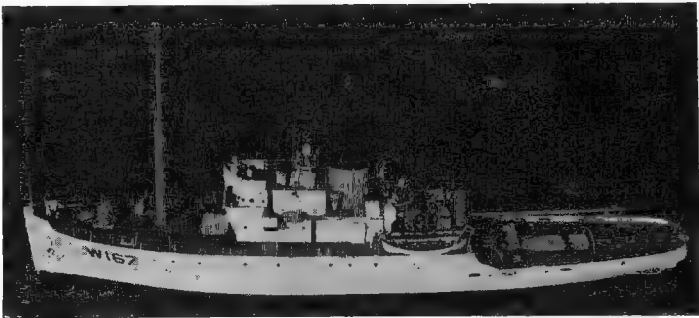
COMANCHE (ex-Wampanoag) 202

MODOC (ex-Bagaduce) 154

Displacement: 534 tons standard (860 tons full load)
Dimensions: 134½ (w.l.), 143 (o.a.) × 34 × 13 feet
Guns: 1—20 mm.
Machinery: Diesel-electric. B.H.P.: 1,500 = 13 kts.
Complement: 4 officers, 40 men

General
Equipped for search, rescue, firefighting and icebreaking. *Comanche* was transferred direct from the U.S. Navy, replacing *Pandora*; and *Modoc* was transferred from the Maritime Administration to the Coast Guard and commissioned at Seattle on 15 Apr. 1959, replacing *Bonham*. A photograph of *Comanche* appears in the 1959-60 to 1964-65 editions.

OCEANGOING TUGS (WAT)



ACUSHNET 1965, United States Coast Guard, Official

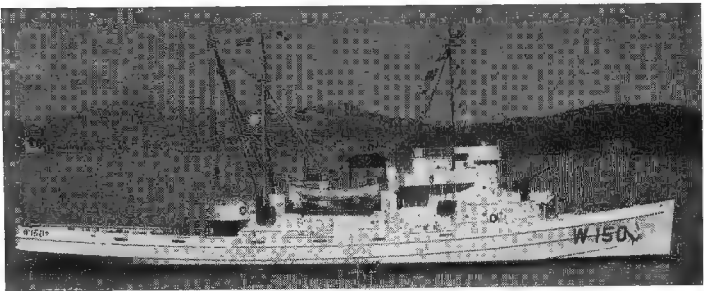
2 "Acushnet" Type

ACUSHNET (ex-Shackle) 167

YOCONA (ex-Seize) 168

Displacement: 1,557 tons standard (1,945 tons full load)
Dimensions: 207 (w.l.), 213½ (o.a.) × 39 × 15½ feet
Machinery: Diesel-electric. 2 shafts. H.P.: 3,000 = 13 kts.

General
Former U.S. Navy ARS type. Launched on 1 Apr. 1943 and 8 Apr. 1944, respectively. Remodelled in 1960.



AVOYEL 1964, United States Coast Guard, Official

4 "Avoyel" Type

AVOYEL (9 Aug. 1944) 150

CHILULA (1 Dec. 1944) 153

CHEROKEE (10 Nov. 1939) 165

TAMAROA (13 July 1943) 166

Displacement: 1,170 tons
Dimensions: 195 (w.l.), 205½ (o.a.) × 38½ × 16 feet
Guns: 1—3 inch, 50 cal.
Machinery: Diesel-electric. H.P.: 3,000 = 16 kts.

General
Avoyel and *Chilula* have been on loan from the United States Navy since 1956 (recommissioned from the Reserve Fleet). A photograph of *Tamaroa* appears in the 1959-60 to 1963-54 editions.

MEDIUM HARBOUR TUGS (WYTM)

13 "Arundel" Class

ARUNDEL (24 June 1939) 90
MAHONING (22 July 1939) 91
NAUGATUCK (23 Mar. 1939) 92
RARITAN (23 Mar. 1939) 93
KAW (1942) 61
MANITOU (29 Sep. 1942) 60

CHINOOK (July 1943) 96
MOHICAN (July 1943) 73
OJIBWA (10 Aug. 1943) 97
SAUK (10 Aug. 1943) 99
SNOHOMISH (10 Aug. 1943) 98
APALACHEE (1943) 71
YANKTON (1943) 72

Displacement: 328 tons
Dimensions: 110 (o.a.) × 26½ × 12½ feet
Machinery: Diesel-electric. S.H.P.: 1,000 = 12 kts.

General
First pair were built by Gulfport Works, Port Arthur, Texas; second pair by Defoe Works, Bay City, Mich; third pair by Coast Guard Yard, Curtis Bay, Md; remaining 7 by Ira S. Bushey & Son, Brooklyn, N.Y. Launch dates above. Strengthened for icebreaking.

4 "Calumet" Class

CALUMET 86

HUDSON 87

NAVESINK 88

TUCKAHOE 89

Displacement: 290 tons
Dimensions: 110½ × 24 × 11½ feet
Machinery: Diesel, with electric drive. B.H.P.: 800 = 12 kts.

General
All launched in 1934. *Hudson* was built at Portsmouth Navy Yard, and the other three at Charleston Navy Yard.

There is also WYTM 85009 (ex-U.S.A. ST-710), 230 tons displacement, 85 (o.a.) × 23 × 9 (mean) feet, direct drive diesel, S.H.P. 700 = 10 kts. Used at Coast Guard Yard.

SMALL HARBOUR TUGS (WYTL)

Six new steel-hulled harbour tugs, Nos. 65601-65606, were built by Gibbs Corporation, Jacksonville, Florida, in the Fiscal Year 1961 programme. 65 tons displacement, 65 × 19 × 7 (mean) feet. 400 H.P. diesel, complement 7. Six more, Nos. 65607-65612, were built by Barbour Boat Works, New Bern, N.C. in the Fiscal Year 1963 Programme.

Four 64 ft. tugs, Nos. 64306, 64310, 64313, 64314, and one 56 ft. tug, No. 56307, are scheduled for decommissioning in Fiscal Year 1966.

Transfer
Yonaguska, WYT 195, was returned to the Navy from which she was on loan.

UNION OF SOVIET SOCIALIST REPUBLICS

Administration

Commander-in-Chief of the Navy and First Deputy Minister of Defence: Admiral of the Fleet Sergei Georgiyevich Gorshkov.
First Deputy Commander-in-Chief of the Navy: Admiral Vladimir Afanasevich Kasatonov.

Naval Attaché in London: Captain 1st Rank Boris Mikhailovich Polikarpov.
Naval Attaché in Washington: Captain Aleksandr Romanovich Astafiev.

Strength

22 cruisers, 150 destroyers, 35 nuclear powered submarines, 390 conventionally powered submarines, 100 frigates, 700 minesweepers, 250 escort and patrol vessels, 350 motor torpedo boats, 550 motor gunboats, 130 landing craft, 300 auxiliaries, 200 service craft.

Warships

Most ships are of recent construction. Nearly all ships not being refitted are fully manned and operational. Cruisers, destroyers, submarines and many smaller craft are fitted for mine-laying.

Nomenclature

Cruisers after statesmen, admirals or heroes. Destroyers and Leaders after adjectives. Frigates and Escorts after birds and winds. Minesweepers after weapons and equipment. Minelayers and Netlayers after rivers and lakes. Surveying vessels after astronomical terms. Depot Ships after towns and rivers. Icebreakers after statesmen and Arctic explorers.

The hull or side numerals of warships change periodically, although apparently the pennant numbers of auxiliaries do not change.

Colour

Combatant vessels: Light grey all over. Auxiliaries: Painted somewhat darker grey. Surveying vessels: Black hulls with red water-lines, yellow funnels with black tops.

Personnel

Total: 510,000 officers and ratings, including river flotillas, training establishments, coast-artillery and marines; and naval air force. In ships: 180,000 officers and ratings. In naval air force: 85,000 officers and men.

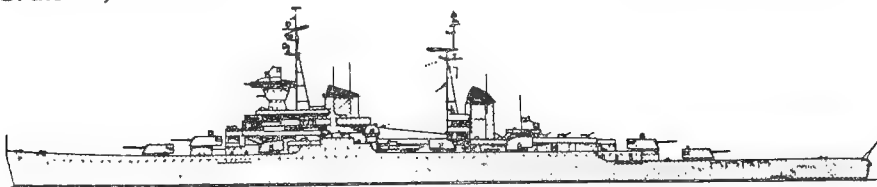
Mercantile Marine

Lloyd's Register of Shipping: 1,674 vessels of 6,957,512 tons gross

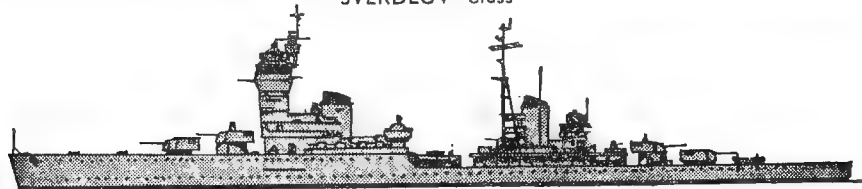
Silhouettes

Scale: 150 ft. = 1 inch.

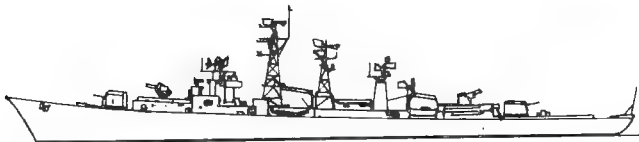
Cruisers, Leaders



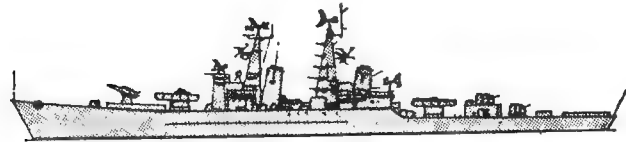
SVERDLOV Class



CHAPAYEV Class



KASHIN Class



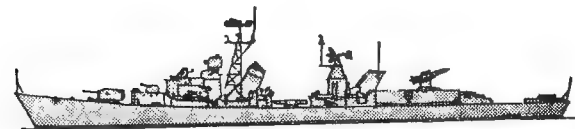
KYNDA Class



KRUPNYI Class



KILDIN Class

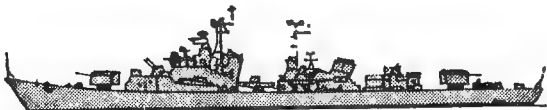


Modified KOTLIN Class

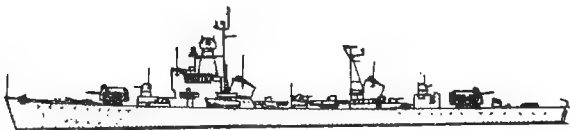
Destroyers, Frigates



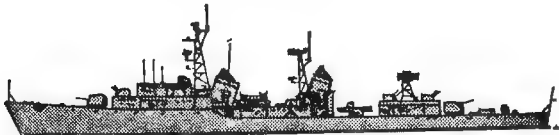
Later KOTLIN Class



KOTLIN Class



TALLIN Class



Modified SKORYI Class



SKORYI Class



KOLA Class

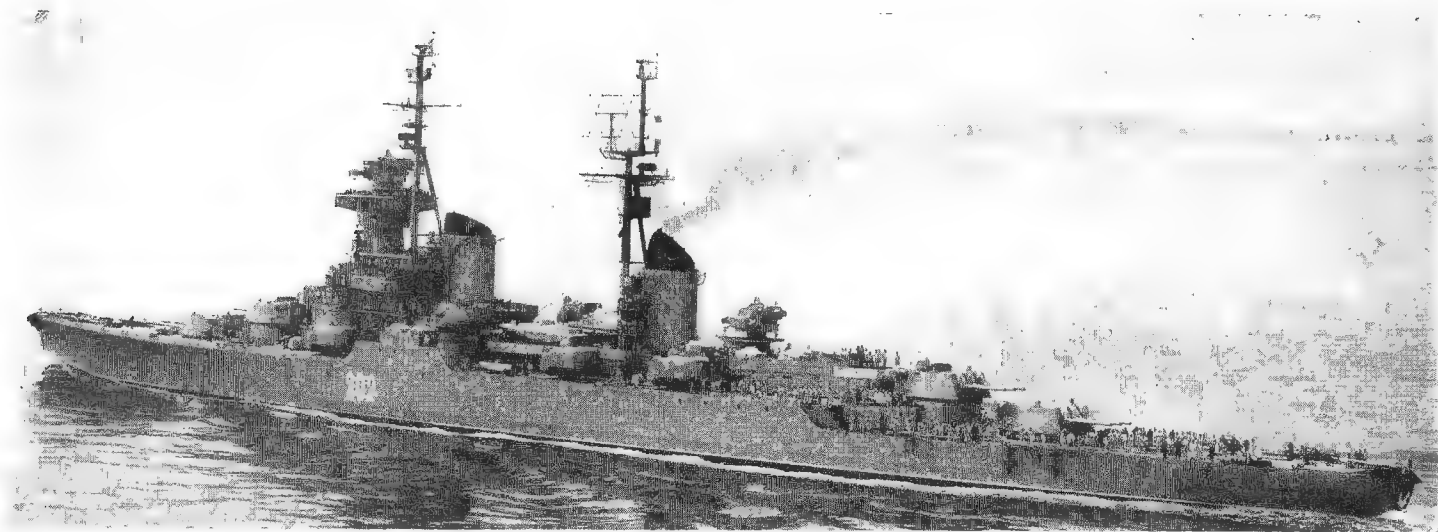


Later RIGA Class



RIGA Class

CRUISERS



OKTYABRSKAYA REVOLUTSIYA

1961, Skyfotos

14 "Sverdlov" Class

ADMIRAL LAZAREV	DZERZHINSKI
ADMIRAL NAKHIMOV	KOSMA MININ
ADMIRAL SENJAVIN	MIKHAIL KUTUSOV
ADMIRAL USHAKOV	MURMANSK (ex-Zhdanov)
ALEKSANDR NEVSKII	OKTYABRSKAYA
ALEKSANDR SUVOROV	REVOLUTSIYA
DMITRI DONSKOI	(ex-Molotovsk)
DMITRI POZHARSKIY	SVERDLOV
Displacement:	15,450 tons standard (19,200 tons full load)
Dimensions:	Length: 656 (pp.), 689 (o.a.) feet. Beam: 70 feet. Draught: 24½ (max.) feet
Guns:	12—6 inch (150 mm.) in 4 triple turrets; 12—3.9 inch (100 mm.) in 6 twin mountings; 32—37 mm. AA. in 16 twin mountings (see Gunnery)
Guided weapons:	Twin launchers aft in Admiral Nakhimov and Dzerzhinski (see Guided Missiles)
Tubes:	10—21 inch in 2 quintuple mountings (see Torpedoes)
Mines:	140 to 250 capacity
Armour:	4 to 5 inch side belts; 1½ to 2 inch forward and aft; 5 inch turrets; 6 inch C.T.; 1 to 2 inch and 2 to 3 inch decks
Machinery:	Geared turbines, 2 shafts. S.H.P.: 130,000—34 kts.
Boilers:	6
Oil fuel:	4,000 tons
Radius:	5,000 miles at 20 kts.
Complement:	1,050

General

Of the 24 ships of this class originally projected, it is reported that 20 keels were laid and 17 hulls were launched from 1951 onwards, but only 14 ships were completed and were operational by Dec. 1960. There are two slightly different types of "Sverdlov" class cruisers. The Sverdlov and others have the 37 mm. AA. guns near the fore-funnel one deck higher than in later cruisers. Most ships are fitted for minelaying. Mine stowage is on the second deck.

Construction

These ships were originally designed for a standard displacement of 12,800 tons and a full load displacement of 17,000 tons.

It is reported that the "Sverdlov" class is limited to 14 units, that "Sverdlov" class cruiser construction was suspended with 6 units remaining partially completed, and that some of these may be completed with a modified armament or with guided missile launchers.

Guided Missiles

In 1961-62 two "Sverdlov" class cruisers were converted with guided weapons. Admiral Nakhimov was fitted with a medium range missile launcher aft, replacing the two gun turrets, and Dzerzhinski was fitted with a close range missile twin launcher aft in place of No. 3 or "X" turret.

Gunnery

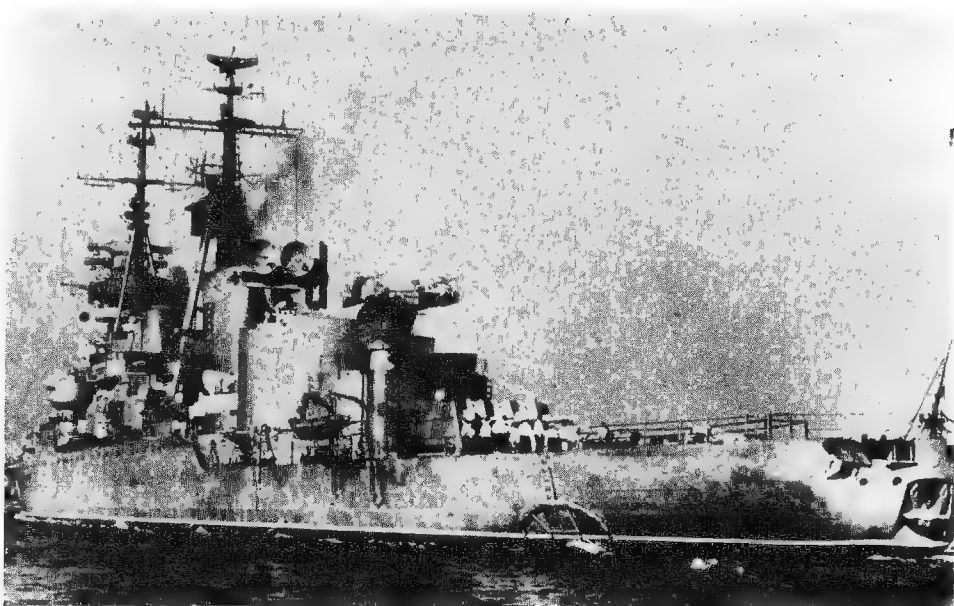
Admiral Nakhimov has only six 6 inch guns in two triple turrets forward, "X" and "Y" turrets having been replaced by guided missile launcher, and Dzerzhinski has only nine 6 inch guns in three triple turrets, "X" turret having been replaced by guided missile launcher.

Torpedoes

Oktyabrskaya Revolutsia and Murmansk no longer have torpedo tubes.

Drawing

Port elevation and plan of "Sverdlov" class without guided missiles. Scale: 128=1 inch.



DZERZHINSKI

1965, Erich Gröner

Appearance

Sverdlov and other ships had their anti-aircraft bridge near the fore-funnel one deck higher than in later ships. Oktyabrskaya Revolutsiya no longer has torpedo tubes. Murmansk has low anti-aircraft bridge near the fore-funnel and no torpedo tubes.

Photographs

Photographs of Admiral Ushakov, Aleksandr Suvorov, and Sverdlov appear in the 1953-54 to 1957-58 editions, of Oktyabrskaya Revolutsiya (as Molotovsk) in the 1957-58 to 1959-60 editions (also large photograph showing midship details) and in the 1962-63 edition (port bow oblique view), of Sverdlov (counter view showing minelaying stern) in the 1961-62 and 1962-63 editions, and of Murmansk (as Zhdanov) in the 1957-58 to 1964-65 editions.

Protection

Deep and thick side belts of armour from the fore turret to the after turret, tapering to the bow and the stern.

Nomenclature

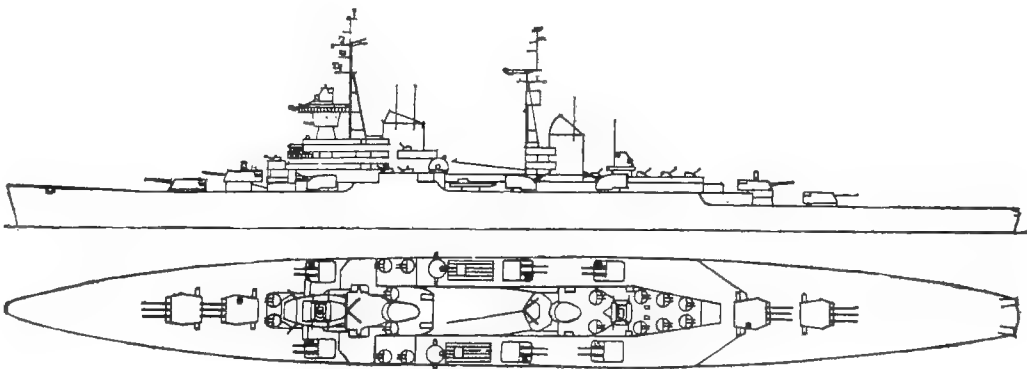
The ship first named Molotovsk was renamed Oktyabrskaya Revolutsiya in 1957, and the ship first named Zhdanov was renamed Murmansk in 1964.

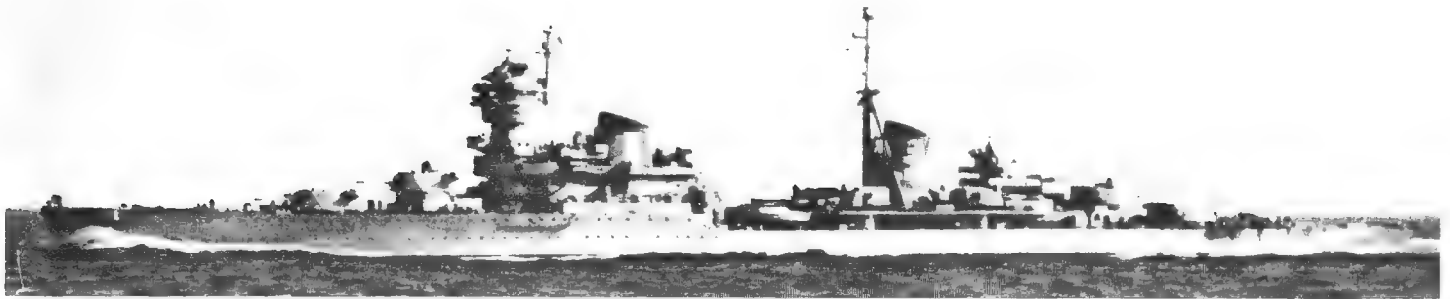
Transfer

Ordzhonikidze of this class was transferred to the Indonesian Navy in Oct. 1962 and renamed Irian.

Disposals

The uncompleted hulls of four "Sverdlov" class cruisers were reported to have been broken up at Leningrad.





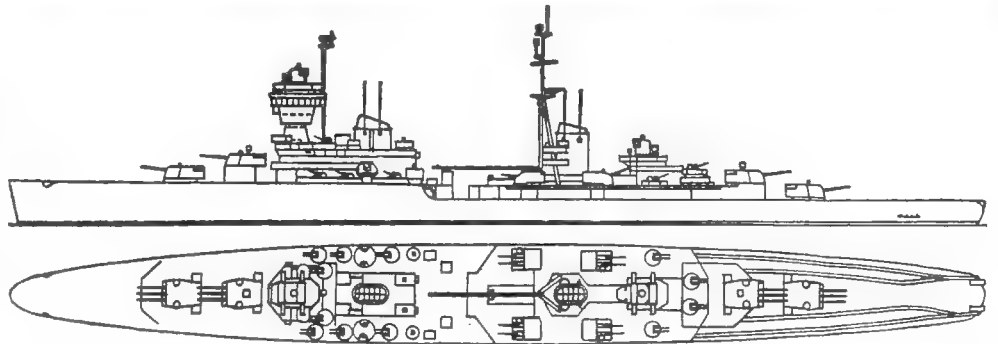
ZHELEZNYAKOV

1959, Antonov Rogov

4 "Chapaev" Class

CHAPAEV
KOMSOBOLETS
(ex-Chkalov)KUIBYSHEV
ZHELEZNYAKOV

Displacement: 11,500 tons standard (15,000 tons full load)
 Dimensions: Length: 656 feet. Beam: 64½ feet. Draught: 21 feet
 Guns: 12—6 inch (4 triple); 8—4 inch AA. (4 twin); 28—37 mm. AA. (14 twin)
 Mines: 100 to 200 capacity
 Machinery: Geared turbines with diesels for cruising speeds. 2 shafts. S.H.P.: 113,000=35 kts.
 Boilers: 6
 Oil fuel: 3,500 tons
 Radius: 4,500 miles at 20 kts.
 Complement: 834



General

Laid down in 1939-40. Launched during 1941-47. All work on these ships was stopped during the war, but was resumed in 1946-47. Completed in 1948-50. Catapults were removed from all ships of this type. Zheleznyakov is in reduced status and serves as a training ship.

Gunnery

Turret guns are in separate sleeves allowing independent elevation. Elevation at least 50 degrees.

Nomenclature

Chkalov was reported to have been renamed Komsomolets in 1961.

Appearance

These cruisers have heavy director on control tower, pole foremast and a tripod mainmast forward of the after funnel. Vertical funnels. All this class have higher freeboard and longer funnels than ships of the "Kirov" class. They resemble the "Sverdlov" class in several respects, but the forecable deck breaks abreast the forefunnel instead of at the quarter deck.

Transfer

It was reported in 1962 that Chapaev, Komsomolets, Kuibyshev and Zheleznyakov would be transferred, two to Egypt and one or two to Indonesia.

Drawing

Port elevation and plan of "Chapaev" class. Drawn in 1957. Scale: 128 feet=1 inch.

Photographs

A port quarter view of Zheleznyakov appears in the 1952-53 to 1957-58 editions, and a starboard quarter view of Chapaev in the 1953-54 to 1959-60 editions.

Disposals

Frunze is reported to have been discarded for disposal. Late in 1961 it was reported that Chapaev was being dismantled in a northern port.



KIROV

1959

2 "Kirov" and 2 "Maksim" Gorki" Types

Kirov Type

KIROV
Maksim Gorki Type
KALININ

SLAVA (ex-Molotov)

MAKSIM GORKI

Displacement: 8,800 tons standard (11,500 tons full load)
 Dimensions: Length: 613½ (pp.), 626½ (o.a.) feet. Beam: 59 feet. Draught: 20 (max.) feet
 Guns: 9—7.1 inch, 8—4 inch AA., 16—37 mm. AA., 6—13 mm. AA.
 Tubes: 6—21 inch (2 triple)
 Mines: 60 to 90 capacity
 Armour: 3 in. side, 2 in. deck, 4 in. gun-houses, 4 in. C.T.
 Machinery: Geared turbines with diesels for cruising speeds. 2 shafts. S.H.P.: 110,000—35 kts. (actually less)
 Boilers: 6 Yarrow or Normand
 Oil fuel: 2,500 tons
 Radius: 3,500 miles at 19 kts.
 Complement: 734

General

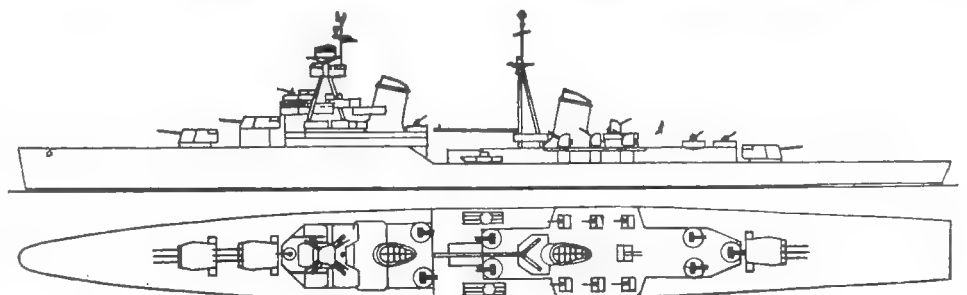
Design and technical direction of construction furnished by Ansaldo. Of this class Ordzhonikidze under construction at Nikolayev, was wrecked by high explosives before the enemy occupied that port in Aug. 1941. At least one of this type (Maksim Gorki) was badly damaged in the Baltic in Aug. 1941.

Appearance

First Group: Kirov and Molotov had very long fore-castle, heavy tripod mast stepped abaft forebridge, light tripod stepped abaft second funnel, very large funnels. Second Group: Remaining vessels had high director tower on forebridge, light tripod foremast abaft bridges, heavy tripod mainmast stepped abaft second funnel, smaller funnels, and generally lighter appearance.

Photographs

Starboard bow and quarter views of Kirov, showing her No. 961, appear in the 1960-61 to 1962-63 editions.



Name	Builders	Laid down	Launched	Completed
Kalinin	Komsomolsk Shipyards	1939	1945	1947
Kirov	Putilov D.Y.	1934	1 Dec. 1936	26 Sep. 1938
Maksim Gorki	Putilov D.Y.	1935	Dec. 1937	1940
Slava	Marti Yard, Nikolaya	1935	23 Feb. 1939	1944

Gunnery

Triple guns are mounted in one sleeve and are incapable of individual elevation. Maximum elevation 40 degrees.

Nomenclature

Molotov was reported to have been renamed Slava in 1962.

Notes to Drawing

Port elevation and plan of Kirov after conversion. Drawn in 1957. Scale: 128 feet=1 inch.

Transfer

Kaganovitch is reported to have been lent or leased by the U.S.S.R. to the Chinese Communist Navy.

Disposals

Yorshilov is reported to have been scrapped. Maksim Gorki is reported to be disarmed and in a bad state. Kalinin and Slava are no more than training hulks.

Disposals of Older Cruisers

The very old Russian cruisers Krasnyi Kavkaz (ex-Admiral Lazarev) and Krasnyi Krym (ex-Prontifern, ex-Svetlana) were hulked.

The old ex-German light cruiser Admiral Makarov (ex-Nurnberg), latterly used only as a stationary training hulk, as she was obsolete and worn out, is reported to have been demilitarised prior to being scrapped at the Zhdanov Works in Leningrad.

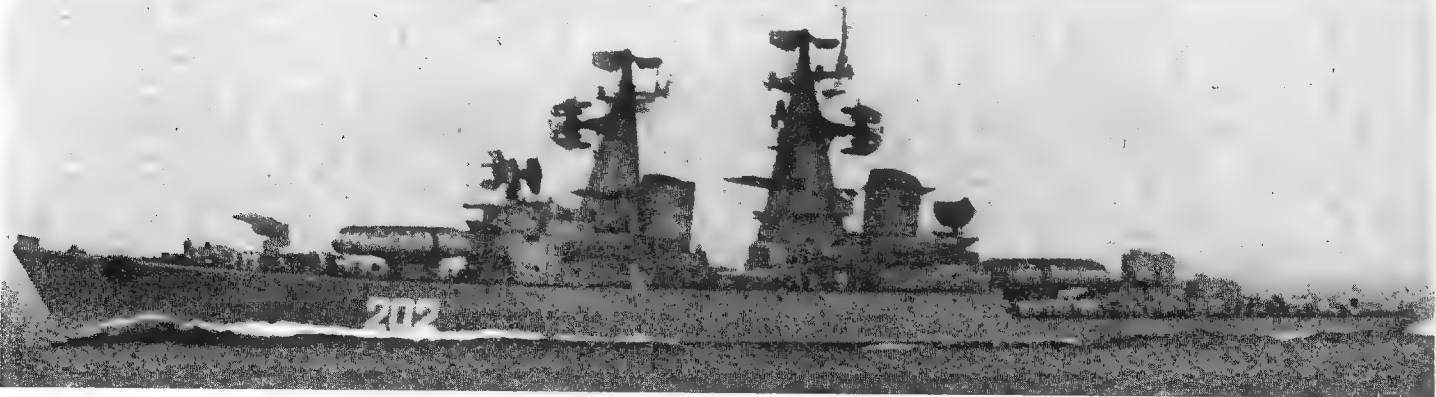
The old ex-Italian light cruiser Kertch (ex-Stalingrad, ex-Z 15, ex-Emanuele Filiberto Duca D'Aosta) of similar vintage, was reported to have been lent or leased by U.S.S.R. to the Rumanian Navy; but in 1961 it was reported she had been scrapped along with the hulk of Krasnayn Krim.

GUIDED MISSILE ARMED DESTROYERS



KASHIN Class No. 078

Added 1964



KYNDA Class No. 202

1965, col. Breyer

4 + "Kashin" Class

No. 11	No. 078	No. 296
Displacement:	4,800 tons standard (6,000 tons full load)	
Dimensions:	492×51×19 feet	
Guided weapons:	2 twin launchers for surface-to-air missiles in "B" and "X" positions	
Guns:	4—85 mm. AA. (2 twin) in "A" and "Y" positions	
Tubes:	5—21 inch (1 quintuple mounting) amidships	
A/S weapons:	2 twelve barrelled and 2 six barrelled rocket launchers	
Machinery:	4 sets gas turbines. S.H.P.: 100,000=35 kts.	

General
A new class of guided missile armed destroyers with anti-aircraft and anti-submarine propensities. Four separate towers carrying radar for missile guidance, anti-aircraft direction, search and gunnery direction. Reported to total four completed units, two built in the Baltic and two in the Black Sea, but the class is likely to run into series production.

6 "Kynda" Class

No. 202	No. 898
Displacement:	4,300 tons standard (5,200 tons full load)
Dimensions:	475×53×19 (max.) feet
Guided weapons:	2 quadruple mountings (1 forward, 1 aft) for surface-to-surface missiles 1 twin launcher for surface-to-air missiles on the forecastle
Guns:	4—85 mm. AA. (2 twin)
Tubes:	6—21 inch (2 triple) amidships
A/S weapons:	2—12 barrelled rocket launchers on the forecastle
Machinery:	2 sets combined steam and gas turbines. 2 shafts. S.H.P.: 85,000=35 kts.
Boilers:	4 high pressure
Complement:	390

General
No. 898 was laid down in June 1960, launched in Apr. 1961 at Zhdanov Shipyard, Leningrad, and completed in June 1962. The second ship was launched in Nov. 1961 and fitted out in Aug. 1962. Two enclosed towers, instead of masts, stepped forward of each raked funnel. Two screws and two rudders, Helicopter landing apron on the stern.

Photographs
A starboard broadside aerial view of No. 898 appears in the 1963-64 and 1964-65 editions.

12 "Krupnyi" Class

No. 229	No. 372	No. 526	No. 700	No. 703
Displacement:	3,650 tons standard (4,650 tons full load)			



KRUPNYI Class No. 372

1965; Captain Aldo Fraccaroli



KRUPNYI Class No. 703

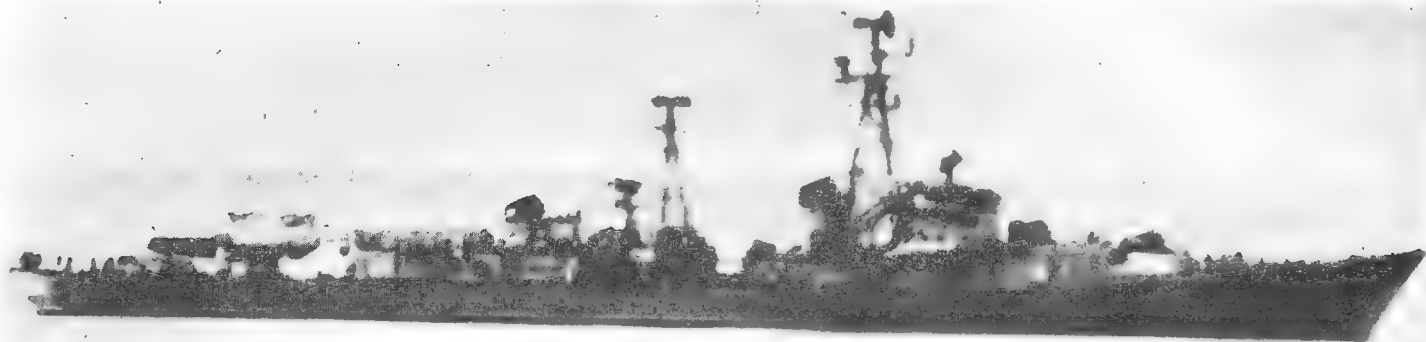
1962

Dimensions:	453×44×16½ feet
Guided weapons:	2 launchers (1 forward, 1 aft) for surface-to-surface missiles
Guns:	16—57 mm. AA. (4 quadruple), 1 forward, 1 aft, 2 amidships
A/S weapons:	2 triple-tube torpedo launchers
Machinery:	Geared steam turbines. 2 shafts. S.H.P.: 80,000=34 kts.
Boilers:	4 high pressure water tube
Complement:	360

General
A class of flush-decked destroyers designed to carry guided missiles. Helicopter spot landing apron on the stern. Initial construction in 1958 at Leningrad.

Photographs
A port broadside aerial view of No. 526 appears in the 1961-62 to 1963-64 editions, a port broadside surface view of No. 700 in the 1962-63 and 1963-64 editions, and a starboard bow surface view of No. 700 in the 1962-63 to 1964-65 editions.

Guided Missile Armed Destroyers—continued



KILDIN Class

Added 1964

6 "Kildin" Class

No. 935 and others
Displacement: 3,000 tons standard (4,000 tons full load)
Dimensions: 426½×42½×15½ feet

Guided weapons: 1 launcher for surface-to-surface missiles aft
Guns: 16—45 mm. AA. (4 quadruple)
A/S weapons: 2—16 barrelled rocket launchers on the forecastle
Machinery: Geared turbines. 2 shafts. S.H.P.: 80,000—35 kts.

Boilers: 4 high pressure
Complement: 300

General
Large destroyers with the "Kotlin" type hull, but redesigned as guided missile armed destroyers with a launcher installed in place of the after gun mountings. Identified by NATO designation as the "Kildin" class.



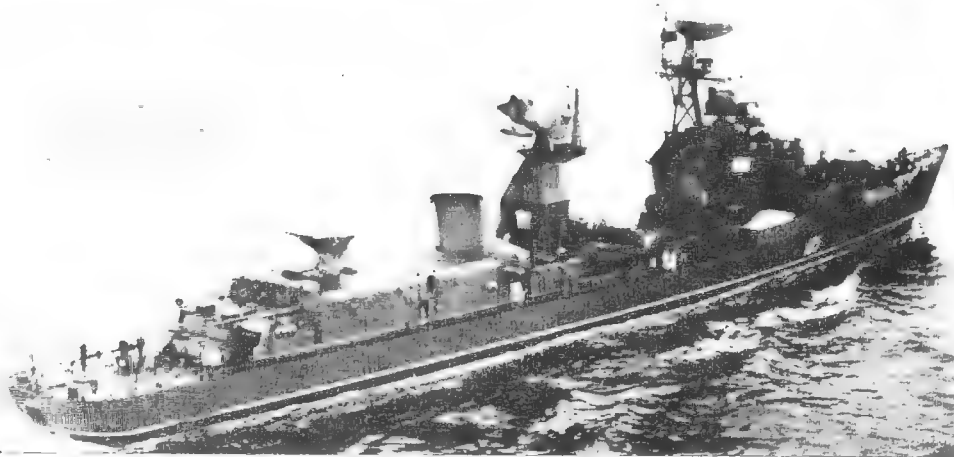
KOTLIN, modified to take a surface-to-air missile launcher aft

1963

4 Modified "Kotlin" Class

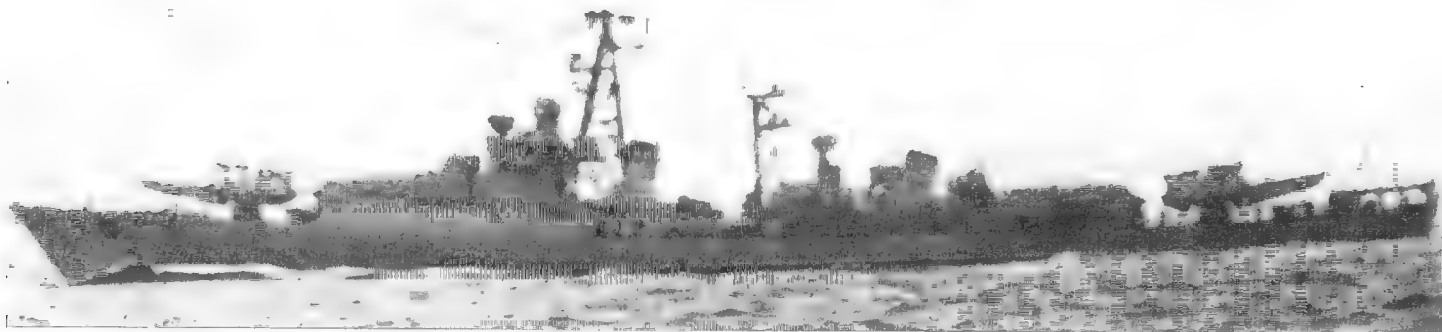
No. 165 No. 935
Displacement: 2,850 tons standard (3,885 tons full load)
Dimensions: 425 (o.a.)×41½×16 (max.) feet
Guided weapons: 1 launcher for surface-to-air missiles aft
Guns: 2—3-9 inch d.p. (1 twin); 4—57 mm. AA. (1 quadruple)
Tubes: 3—21 inch
A/S weapons: 6 side thrown depth charge projectors
Mines: Fitted for laying
Machinery: Geared turbines. 2 shafts. S.H.P.: 80,000—36 kts.
Boilers: 4 high pressure
Complement: 285

General
"Kotlin" Class modified with a surface-to-air guided missile launcher in place of the main twin turret aft and the secondary anti-aircraft guns reduced to one quadruple mounting.



Modified KOTLIN Class No. 165

1962



KRUPNYI Class (see previous page)

1963

DESTROYERS



KOTLIN Class No. 774

Skyfotos

30 "Kotlin" Class

**BESLEDNYI
BURLIVYI
NASTOYCHIVIY**

**SPRAYETLIVYI
SVETLIVYIARE
VDOKHNOVENNYI
VOZMUSHCHENNY**

No. 32	No. 77	No. 79	No. 86	No. 502
No. 75	No. 78	No. 82	No. 95	No. 774
			No. 487	No. 858

Displacement:	2,850 tons standard (3,885 tons full load)
Dimensions:	425 (o.a.) × 41½ × 16 (max.) feet
Guns:	4—3·9 inch d.p. (2 twin); 16—45 mm. AA. (4 quadruple)
Tubes:	10—21 inch
A/S weapons:	6 side thrown depth charge projectors
Mines:	80 capacity
Machinery:	Geared turbines. 2 shafts. S.H.P.: 80,000=36 kts.
Boilers:	4 high pressure
Complement:	285

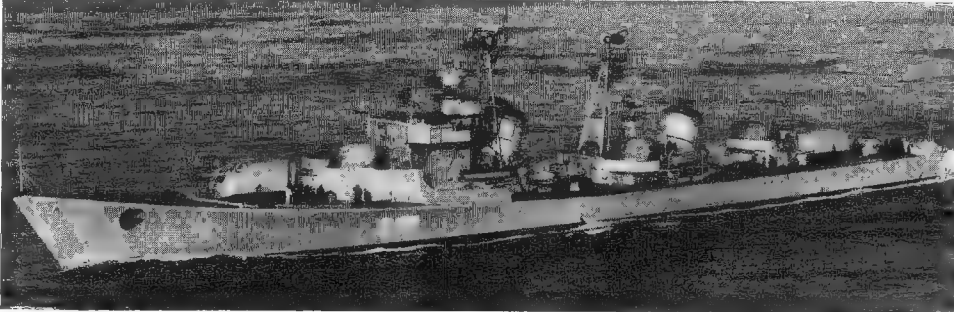
General
Improved versions of the "Tallin" type with similar hulls but differing features. This class of fast anti-aircraft and anti-submarine destroyers, built in 1954-57, were designed for mass production. *Nastoychiviy* means Persistent.

Modernisation
Many units of the "Kotlin" class have been modernised, with extensive modifications in anti-submarine and anti-aircraft armament. Several of the class are fitted with a helicopter platform abaft the after mounting. One ship is fitted with a surface-to-air twin missile launcher aft, installed atop a deckhouse in place of the removed after guns; with missile radar and tower fitted forward of the after funnel. She is the only one of her type and is probably experimental.



KOTLIN Class No. 858 with helicopter platform aft

1965, col. Breyer

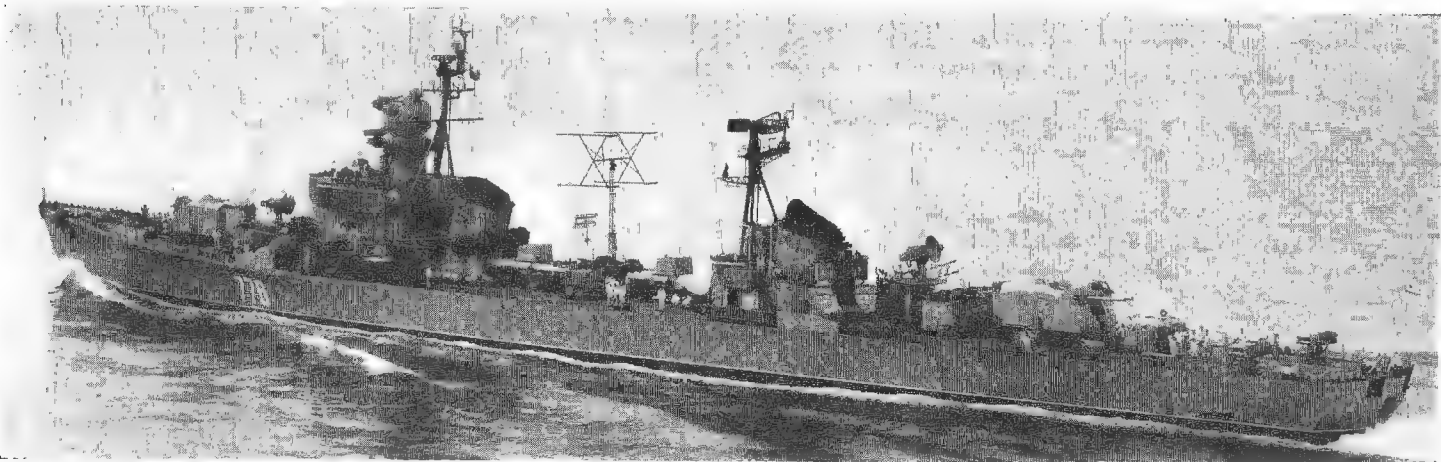


KOTLIN Class No. O.487

1965, Skyfotos

Anti-Submarine Warfare
The six depth charge throwers in *Nastoychiviy* are welded to the deck, three on each beam at the stern, affording only transverse throw. They are apparently charged from deck magazines.

Photographs
Another photograph of a "Kotlin", a port near broadside surface view at sea, appears in the 1957-58 to 1960-61 editions, and starboard broadside view of No. 82 in the 1958-59 to 1964-65 editions.



TALLIN Type No. 778

1961, Skyfotos

"Tallin" Prototype

NEUSTRASHIMIY

Displacement:	3,200 tons standard (4,300 tons full load) see General
Dimensions:	433 (o.a.) × 44 × 16 feet
Guns:	4—3·9 inch semi-automatic d.p. (2 twin); 16—45 mm. AA. (4 quadruple)
Tubes:	10—21 inch (2 quintuple)
A/S weapons:	2 depth charge rocket launchers

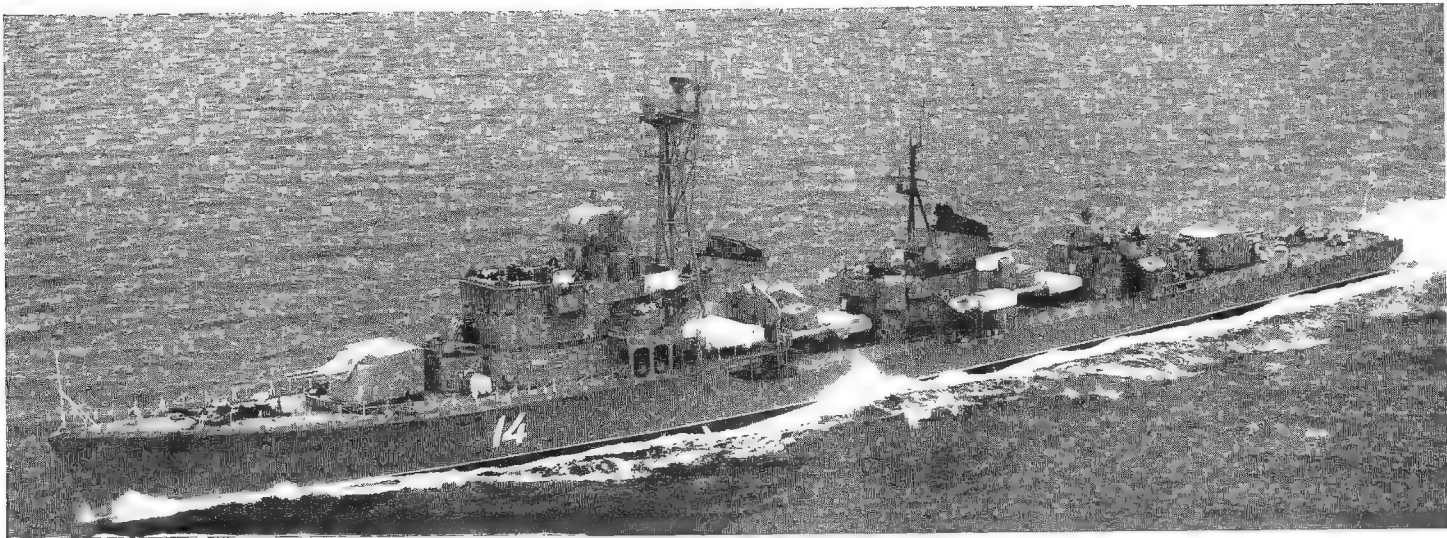
Mines:	70 to 90 according to size and type
Machinery:	Geared turbines. 2 shafts. S.H.P.: 100,000=38 kts.
Boilers:	4 water tube
Oil fuel:	1,000 tons
Radius:	2,500 miles at 18 kts.
Complement:	340

General
A multi-purpose anti-aircraft, anti-submarine and minelaying flushdecked prototype destroyer for fleet escort and flotilla leader duties. *Neustrashimiy* means Unfearing.

Gunnery
The 3·9 inch (100 mm.) guns in two twin turrets are similar to those mounted as secondary armament in the "Sverdlov" class cruisers, including firing directors and control position, fully stabilised, forming a part of the bridge. This was the first time such an armament had been contrived in a ship of destroyer size, an experiment in top weight.

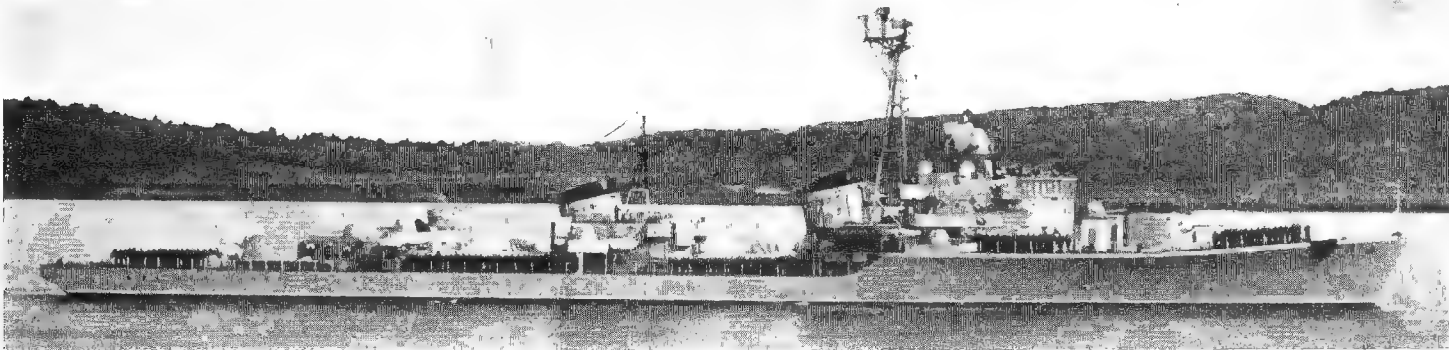
Class
It is reported that there is only a single "Tallin" class ship, a prototype for the "Kotlin" class, but she has had several different pennant numbers, including No. 76, see photograph in the 1956-57 to 1960-61 editions.

Destroyers—continued



SVOBODNYI (bearing No. 14)

1957, Skyfotos



OTVETSVENNYI

1957

75 "Skoryi" Class

BDITYELNYI
BESNERVNYI
BESSMENNYI
BESSMERTNYI
BESSPOKOINYI
BESSTRASHNYI
and 3 others with B names in the Black Sea.

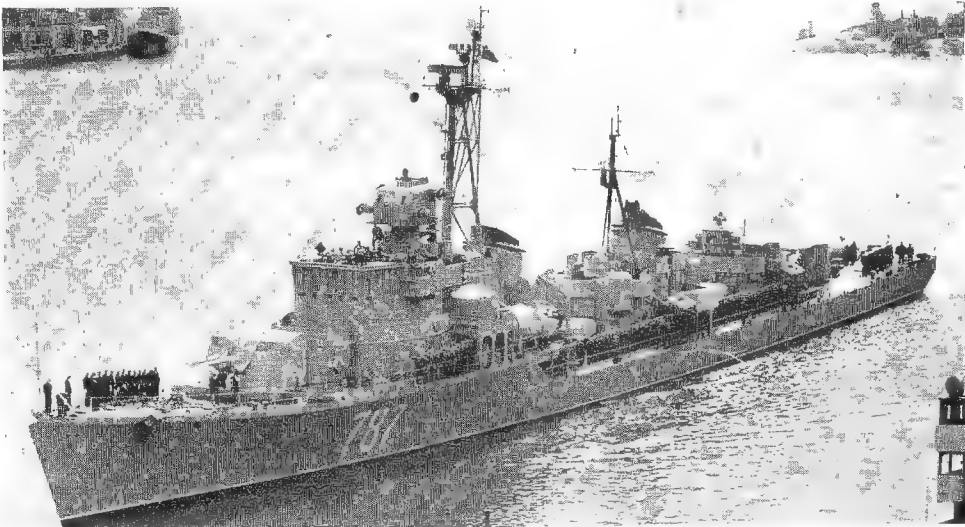
OBRAZOVANNY
OGNENNY
OSMYLENNYI
OSNOVATELNY
OSTERVENELYI
OSTOROZHNYI
and 3 others with O names in the Arctic.

SERDITYI
SEREZNYI
SMELYI
SMOTRYASHCHY
SMYSHLYONYI
SOKRUSHYTELNYI
SOLIDNYI
SOOBRAZITELNYI
and 4 others with S names in the Baltic.

VAZHNYI
VDUMCHIVYI
VEDUSHCHIY
VERNYI
VIDNYI
VIKHREVOI
and 12 others with V names in the Far East.

BEZSHUMINYI
BEZUKORIZNENNYI
BEZUPRECHNYI
BODRI
BOIKI
BYSTRYI
OSTROGLAZY
OTCHAIANNY
OTRETOVENNYI
OTVETSVENNYI
OZHESTOCHONNYI
OZHIVLENNYI
OZLOBIONNYI

SOVERSHENNYI
SPOSOBNYI
STATNYI
STEPENNYI
STOIKI
STREMITELNYI
SUROVYI
SVOBODNYI
VNEZAPNYI
VNIMATELNYI
VOLEVOI
VOZBUZHDONNYI
VRAZUMITELNYI
VYDERZHANNYI



SVOBODNYI (bearing No. 787)

1960

Displacement: 2,600 tons standard (3,500 tons full load)
Dimensions: 393½ (pp.), 420 (o.a.) × 41 × 15 feet
Guns: 4—5.1 inch (twin), 2—3 inch AA., 7—37 mm. AA. (Some have 8—37 mm. AA. in twin mounts) See *Modernisation*
Tubes: 10—21 inch
A/S weapons: 4 D.C.T.
Mines: 80 capacity
Machinery: Geared turbines. 2 shafts. S.H.P.: 70,000=36 kts.
Boilers: 4 high pressure
Radius: 4,000 miles at 15 kts.
Complement: 260

General

There were to have been 85 destroyers of this class, but construction beyond 75 units is reported to have been discontinued in favour of later types of destroyers. There are now tactical "500 and 700" series. Numbers observed include 580, 787 and 789.

Gunnery

They are equipped with modern target finding and gun sighting radar for the 5.1 inch guns in two twin turrets, and they also carry depth charge throwers.

Nomenclature

The names of "Skoryi" class destroyers are apparently based on their fleet assignment. Those in the Black Sea have names beginning with B, those in the Northern Fleet have names beginning with O, those in the Baltic have names beginning with S and those in the Pacific Fleet have names beginning with V. This is the only class to which names appear to be applied to indicate fleet designation. Whether the same is altered with a change in fleet assignment is not clear, but it seems that this might be the case when the change is permanent. *Osmyslennyi* means "Sensible" and *Ostervenyeli* means "Frenzied".

Appearance

There are three differing types in this class, the anti-aircraft guns varying with twin and single mountings; and two types of foremast, one vertical with all scanners on top and the other with one scanner on top and one on a platform half way.

Modernisation

Many ships of the "Skoryi" class have been modified under a fleet rehabilitation and modernisation programme with extensive alterations to anti-aircraft armament, electronics, and anti-submarine weapons. A number of ships have had "A" turret suppressed, with A/S launchers in lieu and two twin 57 mm. AA. guns abreast the bridge, director removed and local control fitted aft for "Y" mounting.

Photographs

Photographs of *Stepennyi*, *Sposobnyi* and *Surovnyi* appear in the 1954-55 to 1957-58 editions, a large broadside view of *Smotryashchy* in the 1957-58 to 1959-60 editions, a starboard bow view of *Ozhestochonnyi* in the 1957-58 to 1962-63 editions, and a port broadside view of *Otchalannyi* in the 1958-59 to 1962-63 editions.

Transfers

Of this class *Skoryi* and *Smetlivyi* were transferred to the Polish Navy in 1957-58. Two sister ships were transferred to the Egyptian Navy in 1956. Four more units were transferred to the Indonesian Navy in 1959.

FRIGATES

5 "Mirka" Class

No. 67 No. 105 No. 166
General

A new class of escorts, successor and anti-submarine version of the "Petya" class, with same size, two twin 85 mm. mounts, from ASW rocket launchers, and gas turbine propulsion. Two built in the Baltic, three others under construction at Kaliningrad in 1964. See photograph in Addenda.

25 "Petya" Class

No. 4

Displacement: 1,050 tons standard (1,200 tons full load)
Dimensions: 250 (w.l.), 262½ (o.a.)×32×9½ feet
Guns: 4—85 mm. (2 twin mountings)
Tubes: 5—21 inch
A/S weapons: 4—16 barrelled rocket launchers
Mines: 2 minerais
Machinery: 2 diesels. B.H.P.: 4,000; 2 gas turbines. H.P.: 10,000. 2 shafts =30 kts.



"Petya" Class No. 4

1965, col. Breyer

General

A new class of escort patrol vessels with a low wide

funnel. The first ship of the type is reported to have been completed in 1961. Built by Kaliningrad, Nii.olaiev.

12 "Kola" Class

DOBLESTNY **DZERSKI** No. 622
DOSTOINI **DZGUTSHI** No. 632
DRUSHNY **DZIVUTSHI** No. 639
DSKARKI **DZOSTKI** No. 652
Displacement: 1,500 tons standard 2,000 tons full load
Dimensions: 295 (pp.), 305 (o.a.)×32½×11 feet
Guns: 4—3.9 inch AA. (single); 4—37 mm. AA.
Tubes: 3—21 inch
A/S weapons: Depth charges and racks
Machinery: Geared turbines. 2 shafts. S.H.P.: 30,000 =31 kts.
Machinery: 2
Complement: 190

General

In design this class of flushdecked destroyer escort appears to be a combination of the former German "Elbing" type torpedo boat destroyers, with a similar hull form, and of the earlier Soviet "Birds" class frigates. The four 3.9 inch guns were mounted as in



652

Added 1957

the "Gordyi" class destroyers. It is reported that eight of this class are in the Baltic and four in the Far East. Nomenclature

The last five names are also rendered as Zharki

(Dskarki), Zherski (Dzerski), Zhgutsh (Dzgutshi), Zhivutshi (Dzivutshi) and Zhostki (Dzostki). Nos. 622, 632, 639 and 652 were reported in the Far East.

60 "Riga" Class

No. 50 No. 168 No. 375 No. 645
No. 54 No. 202 No. 582 No. 651
No. 55 No. 324 No. 642 No. 656

Displacement: 1,200 tons standard (1,600 tons full load)
Dimensions: 278 (pp.), 295 (o.a.)×31½×11 feet
Guns: 3—3.9 inch d.p. (single); 3—37 mm. AA.
Tubes: 3—21 inch
A/S weapons: 4 depth charge projectors
Mines: Fitted with mine rails
Machinery: Geared turbines. 2 shafts. S.H.P.: 25,000=28 kts.
Boilers: 2

General

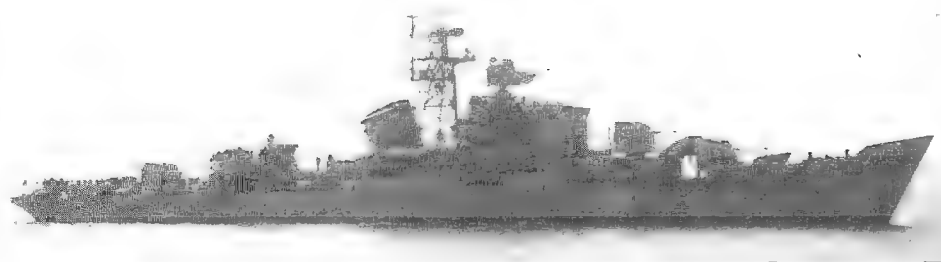
Successors to the "Kola" class frigates, of which they are lighter and less heavily armed but improved versions. A photograph of No. 645 appears in the 1956-57 to 1962-63 editions.

Appearance

This class is divided into two types with different schemes of masting construction, see photographs.

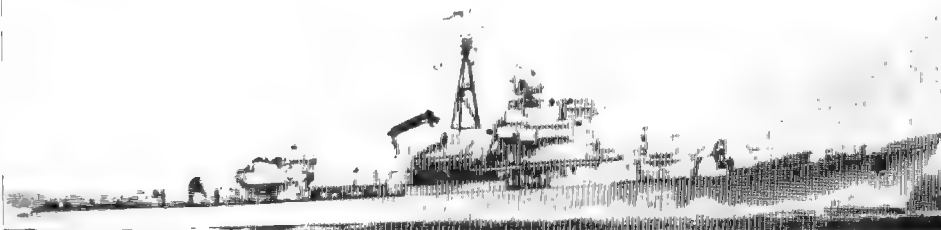
Disposals of Older Frigates

The three frigates of the Improved "Birds" class, *Albatros*, *Chaika* (Seagull), and *Krechet* (Buzzard); the seven frigates of the "Birds" class, *Berkut* (Golden Eagle), *Grif* (Griffin), *Kondor*, *Korshun* (Kite), *Orel* (Eagle), *Voron* (Raven) and *Yastreb* (Hawk); and the two Ansaldo type vessels, *Dzerzhinski* (ex-P.S. 8) and *Kirov* (ex-P.S. 26), have been deleted from the list on account of age, obsolescence or being worn out. They are of little fighting value, and if serving at all, can only be used for training or auxiliary purposes.



No. 168. Later "Riga" Class

1962, Nigel Peddie



No. 656. "Riga" Class

Sergei Romanov

TRAINING DESTROYERS

9 "Otlchnyi" Class

OBRAZTSOVYI **OPASNYI** **OTLICHNYI**
ODARENNI **OSMOTRITELNYI** **OTVAZHNYI**
OGNEVOI **OSKOTRITELNYI** **OZORNOI**

Displacement: 1,800 tons standard (2,650 tons full load)
Dimensions: 387½×36½×12 feet
Guns: 4—5.1 inch, 55 cal. (2 twin); 2—3 inch AA.; 6—37 mm. AA.
Tubes: 8—21 inch
A/S weapons: 4 D.C.T.
Mines: 60 to 80 capacity
Machinery: Geared turbines. 2 shafts. S.H.P.: 60,000=36 kts.
Boilers: 3 water tube
Oil fuel: 370 tons
Complement: 212

General

These were a development of the "S" and "R" classes. *Osmotritelnyi* means "Cautious" or "Circumspect." All names are adjectives. This class is of little fighting value due to age and obsolescent equipment. Most of the ships, if serving at all, are probably used for training or auxiliary purposes.



OTLICHNYI

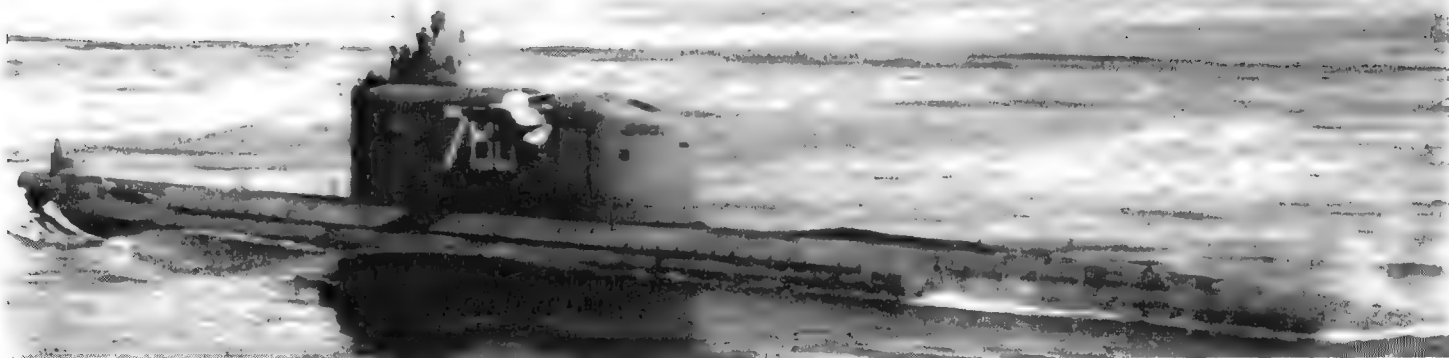
1959, Antonov Rogov

Disposals of Older Destroyers

The eight destroyers of the "Ryanyi" class, *Razyashchyi*, *Redki*, *Rekordnyi*, *Reshitelnyi*, *Reski*, *Resvi*, *Revostnyi* and *Ryanyi*; the eight destroyers of the "Silnyi" class, *Silnyi*, *Slavnyi*, *Storozhevoi*, *Strashnyi*, *Strogi*, *Stroinyi*, *Svirepyi* and *Vice-Admiral Dzozd* (ex-Stoiki); the five destroyers of the "Gromki" class, *Gremyashchyi*,

Gromki, *Groznyi*, *Grobnyashchyi* and *Steregushchyi*; and the three remaining destroyers of the "Leningrad" class, *Baku*, *Leningrad* and *Minsk*, have all been deleted from the effective list on account of age, obsolescence or being worn out. They are no longer of any considerable military value, and if serving at all, can only be used for training or ancillary purposes.

SUBMARINES (Podvodnye Lodki)



No. 780. Ballistic Missile Submarine. Side opening hatches open.

1962

Programme

Summary

There are now 425 effective submarines. Most are of the large oceangoing type. More of a medium type are being built. Most are known by numbers; some by names as well.

It is intended to maintain a four-theatre submarine fleet for operations in the Pacific, in the Baltic, in the Arctic, and in the Black Sea. A large proportion of the ocean ranging Soviet Fleet consists of submarines. A new type of submarine has been completed. Another type of nuclear powered submarine is on trials. A new class of submarine is equipped with ballistic missile tubes. A new class of radar picket submarine is in service. Some submarines are armed with far-ranging surface rockets with nuclear and hydrogen warheads.

New Construction

Some 30 submarines are under construction in Soviet dockyards. These are reported to include six different types as follows:

- Nuclear powered ballistic missile type with long range.
- Nuclear powered anti-submarine type with high speed.
- Large nuclear powered ballistic missile type with long range.
- Large diesel powered attack type with high speed.
- Large diesel powered ballistic missile type with long range.
- Large diesel powered ocean type with high speed.

Nuclear Powered Submarines

10 "E" Class

Nuclear Powered Ballistic Missile Type

- Displacement: 5,600 tons surface
- Dimensions: 385×33×27 feet
- Guided weapons: 6 launching tubes for missiles
- Machinery: Nuclear reactors, steam turbines. 2 shafts. 20 to 22 kts.; (max.), 12 to 14 kts. cruising
- Complement: 92 (12 officers, 80 men)

General

A new class of ocean ranging streamlined submarines, fitted with six ballistic missiles in launching tubes elevating out of the flush deck, with launchers two abreast. The "E" class submarines now in the Pacific were built at Komsomolsk.

13 "H I" Class

Nuclear Powered Ballistic Missile Type

- Displacement: 3,500 tons surface, 4,100 tons submerged
- Dimensions: 328×33×25 feet
- Guided weapons: 3 launching tubes for missiles
- Tubes: 6 bow for 21 inch torpedoes
- Machinery: Nuclear reactors, steam turbines. 2 shafts. S.H.P.: 15,000=25 kts. surface, 30 kts. submerged
- Complement: 90

General

A new type of fast nuclear powered long range cruising submarines armed with three ballistic missile tubes in the large "sail", or conning tower. The missiles are estimated to have a range of 380 nautical miles. Ten boats are reported to be operational and on station.

12 "N" Class

Nuclear Powered Anti-Submarine Type

LENINSKY KOMSOMOL 270

- Displacement: 3,200 tons surface, 4,000 tons submerged
- Dimensions: 328×32×24 feet
- Tubes: 6 bow for 21 inch torpedoes
- Machinery: Nuclear reactors, steam turbines. 2 shafts. S.H.P.: 15,000=25 kts. surface, 30 kts. submerged
- Complement: 88

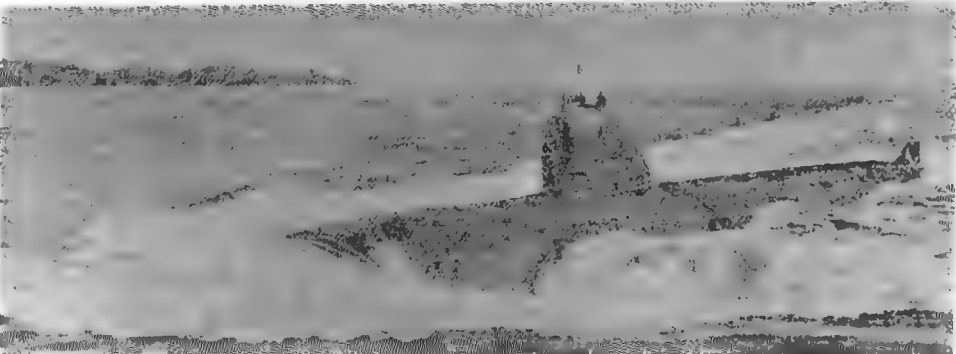
General

A new type of fast nuclear powered attack submarines designed as anti-submarine hunter-killers. Reported to be basically similar, in main particulars to the "H" class above. All reported to be operational and on station. Vary in detail.



No. 788. Ballistic Missile Submarine.

1962



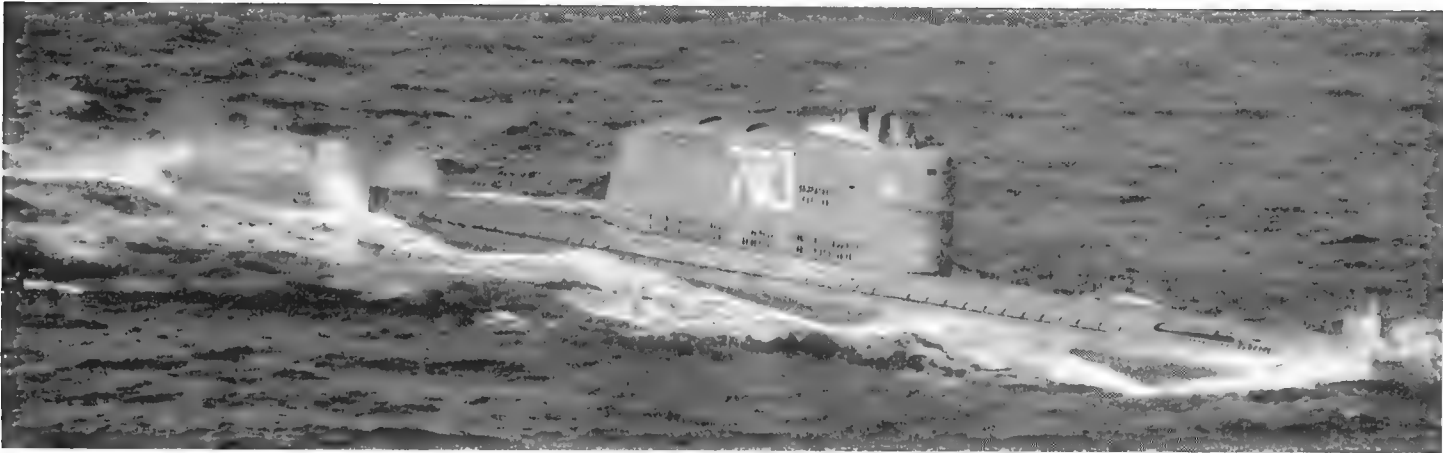
"N" Class Nuclear Powered Anti-Submarine Type

1965, col. Breyer



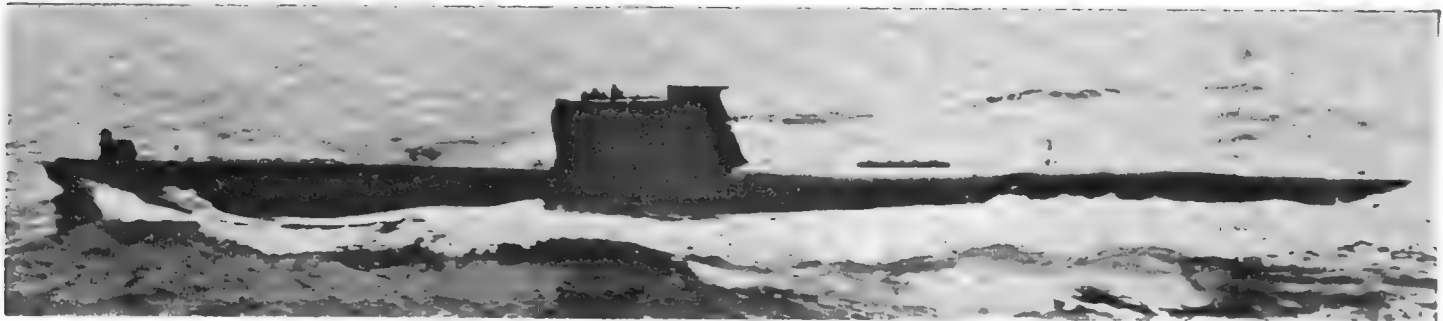
LENINSKY KOMSOMOL 270

Added 1964



No. 783, "G" Class Ballistic Missile Submarine

1962



"F" Class (see next page)

1960

Missile Submarines
2 "J" Class

Displacement: 1,600 tons surface
Dimensions: 272½×27×20 feet
Guided weapons: 4 launchers for missiles, 2 before and 2 abaft the low and extended sail or conning tower
Bow, for 21 inch torpedoes
Tubes: Diesels=18 kts. surface
Machinery: Electric motors=15 kts. submerged

General

A new type of medium sized submarines with a long superstructure fin and high surfaced freeboard. The prototype, launched in 1962, is reported to have left the Baltic in 1963, and a sister boat is fitting out. May be a conversion of the "W" class design.

30 "G" Class. Ballistic Missile Type

Displacement: 2,350 tons surface, 2,800 tons submerged
Dimensions: 320×28×22 feet
Guided weapons: 3 vertical tubes for missiles
Torpedo tubes: 6—21 inch (bow)
Machinery: 3 diesels, 3 shafts. Total H.P.: 6,000=17.6 kts. surface.
Electric motors=17 kts. submerged
Radius: 22,700 miles surface cruising
Complement: 86 (12 officers, 74 men)

General

A class of ballistic missile submarines having a very large conning tower fitted with three vertically mounted tubes and hatches for launching guided missiles. Built at Komsomolsk and Severodvinsk. Construction commenced in 1958.

10 "Z" Class. Ballistic Missile Type

Displacement: 2,100 tons surface, 2,600 tons submerged
Dimensions: 295½×29×19 feet
Guided weapons: 2 launchers for missiles
Tubes: 6—21 inch
Machinery: Diesels, 2 shafts. B.H.P.: 10,000=22 kts. surface
Electric motors. H.P.: 3,500=16 kts. submerged
Complement: 85

General

These are basically of "Z" class design but converted to ballistic missile submarines with larger conning towers and two vertical tubes for missile launching. Six boats were converted initially with further conversions in 1961.

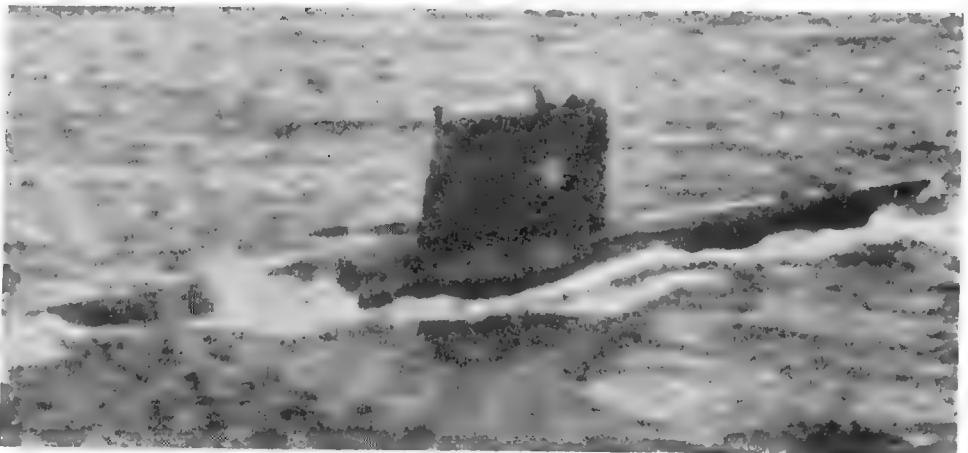
12 "W" Class. Guided Missile Type

General

Some submarines of the "W" class are reported to be equipped with a special tank on deck for carrying guided missiles and with inclined missile launchers. Others have been converted to missile carrying submarines with single or twin cylinders on deck abaft the conning tower.

Photographs

See photograph of a twin ballistic missile launcher on a Soviet submarine on page 444 (Addenda) of the 1962-63 edition.



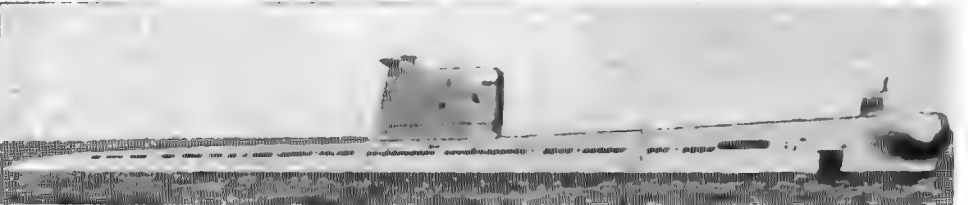
"Z" Class. Ballistic Missile Type

Added 1964



"Z" Class (see next page)

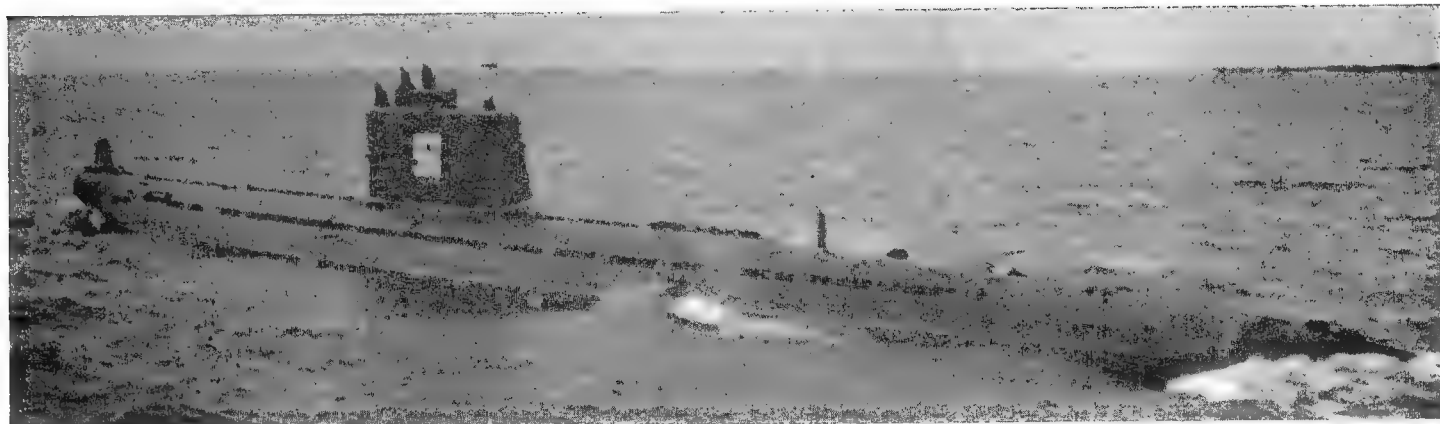
1960



"F" Class (see following page)

1963

Submarines—continued



No. 958, "Z" Class

1960

Attack Submarines

30 "F" Class. Large Attack Type

No. 238	No. 911
Displacement:	2,000 tons surface, 2,300 tons submerged
Dimensions:	300×27×19 feet
Tubes:	8—21 inch (20 torpedoes carried)
Machinery:	Diesels. 3 shafts. B.H.P.: 10,000=20 kts. surface Electric motors. H.P.: 4,000=15 kts. submerged
Complement:	70

General
Improved versions of the "Z" class. Equipped with snort. It is reported that ten units of this class had been launched by Nov. 1959, and the last was launched in Dec. 1961 at the Sudomekh Yard in Leningrad.

40 "Z" Class. Large Oceangoing Type

No. 63	No. 66	No. 71	No. 72	No. 958
Displacement:	1,900 tons surface, 2,200 tons submerged			
Dimensions:	295×26×19 feet			
Guns:	2—57 mm. in twin turret before conning tower; twin 25 mm. AA, on conning tower (in most boats guns are suppressed)			
Tubes:	8—21 inch (6 bow, 2 stern). 24 torpedoes carried			
Machinery:	Diesel-electric, 2 shafts. Diesels: B.H.P.: 10,000=20 kts. surface Electric motors: H.P.: 3,500=15 kts. submerged			
Radius:	20,000 to 26,000 miles			
Complement:	70			

General
Large oceangoing type. Completed from 1954 to 1960. General appearance is streamlined with a complete row of rapid flooding holes along the casing. This class was stationed in the Baltic and Far East. The first of the class was laid down in 1951 and most were commissioned during 1954-60. Eighteen were built by Sudomekh Shipyard, Leningrad, in 1952-55 and others at Severodvinsk. At least three have been converted to radar pickets. Some may be oilers. Mine capacity of 40 is alternative to torpedo capacity. All equipped with snort.

20 "R" Class

No. 101	No. 202	No. 204	and others
Displacement:	1,100 tons surface, 1,600 tons submerged		
Dimensions:	246×24×14½ feet		
Tubes:	6—21 inch (bow)		
Machinery:	Diesels. B.H.P.: 4,000=18.5 kts. surface. Electric motors. H.P.: 2,500=15 kts. submerged		
Complement:	65		

General
These "R" class submarines are of a modified "W" type with modernised superstructure, conning tower, and sonar installation. Reported to number 13 boats by the end of 1962.

50 "Q" Class. Medium Range Type

No. 23	No. 45	No. 51	No. 68	No. 98
No. 37	No. 47	No. 62	No. 72	No. 192
		No. 66	No. 75	No. 528
Displacement:	650 tons surface, 740 tons submerged			
Dimensions:	185×18×13 feet			
Guns:	2—25 mm. in gunhouse before the conning tower in some boats			
Tubes:	4—21 inch			
Machinery:	Diesel. 1 shaft. B.H.P.: 3,000=18 kts. surface Electric motors. H.P.: 2,500=16 kts. submerged			
Oil fuel:	50 tons			
Radius:	7,000 miles cruising range			
Complement:	40			

General
Medium range, single screw submarines. Built from 1954 to 1960. Improved versions of the "Shch" class now discarded. Thirteen were constructed in 1955 by Sudomekh Shipyard, Leningrad.



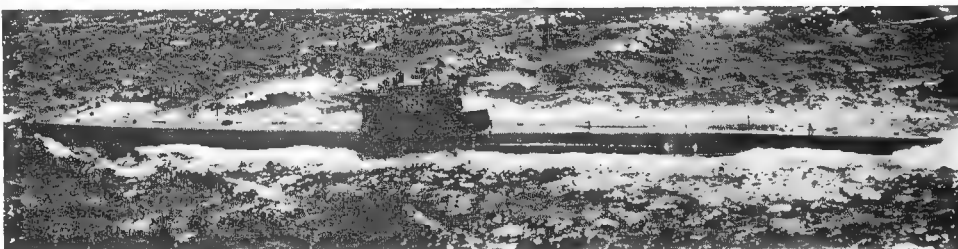
"F" Class No. 238

1965, col. Breyer



"R" Class No. 101

1963



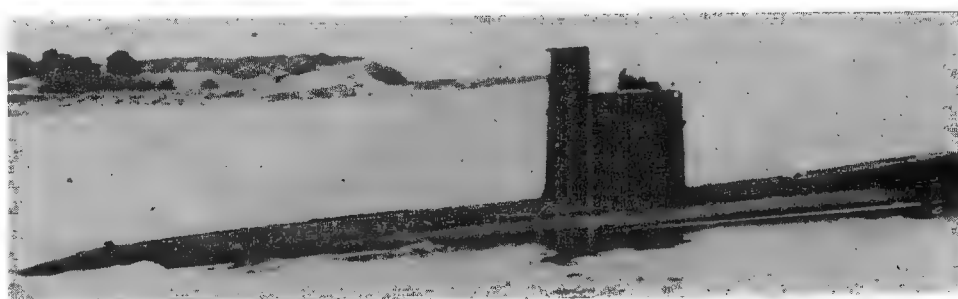
"W" Class No. 350

1961



W.25 ("W III" Class)

1959, Antonov Rogov



"Q" Class

1965, col. Breyer

Submarines—continued

170 "W" Class. Seagoing Patrol Type

No. 12	No. 66	No. 179	S 48	S 176
No. 25	No. 68	No. 224	S 77	S 221
No. 28	No. 78	No. 244	S 87	S 222
No. 29	No. 81	No. 261	S 91	S 237
No. 34	No. 125	No. 305	S 173	S 333
	No. 148	No. 350		
		No. 752		

Displacement: 1,030 tons surface, 1,180 tons submerged
 Dimensions: 240×22×15 feet
 Guns: Some had 1.39 inch in a turret before the conning tower; 1 light AA. Others 2—57 mm., 2—25 mm.
 Tubes: 6—21 inch (4 bow, 2 stern). 18 torpedoes carried
 Mines: 40 mines or 18 torpedoes
 Machinery: Diesel-electric, 2 shafts. Diesels: B.H.P.: 4,000—17 kts. (surface)
 Electric motors: H.P.: 2,500—13,000 to 16,500 miles
 Radius: 15 kts. (submerged)
 Complement: 60

General

A class of medium size long range submarines built from 1950 to 1957 in yards throughout the Soviet Union. All streamlined. This group is subdivided into three types, the "W" class, the "WF" class, and the "W III" class. Stationed in considerable numbers in the Baltic, the North, the Black Sea and the Far East. Equipped with snort. Fitted for minelaying. Some carry one 3.9 inch deck gun.

SEVERYANYA

SLAYYANKA

General

Converted "W" class submarines specially fitted out for scientific research.

Disposals of "K" Class

The few minelaying submarines of the "K" class which survived the Second World War were deleted from the list in 1963-64. If any remain at all they can only be used for training on account of age and obsolescence.

Disposals of "Shch" Classes

The 19 submarines of the "Shch IV" class, Sh 400, 401, 402, 403, 404, 407, 408, 410, 411, 412, 419, 422, 425, 426, 427, 428, 429, 430 and 431, were deleted from the list in 1964, as they are no longer operational.

It was reported in 1960 that 50 boats of the "Shch" class, Sh. 101 to 139, 141, 201, 203, 205, 207, 215, 305, 307, 309, 310, and 318, including most of the "Shch" I, II and III classes, having become obsolete and worn out, were scrapped.

Disposals of Other Classes

The 30 remaining old submarines of the "S(C)" class, S 4, 9, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 31, 35, 36, 37, 38, 54, 55, 56, 101, 102, 103, 104, 137 and 139; and the 18 surviving coastal submarines of the "M IV" class, M 102, 103, 104, 105, 106, 111, 112, 119, 120, 121, 122, 123, 124, 171, 172, 174, 175 and 176, are worn out and discarded and if they retain any military value at all they can only be used for instructional service.

The old ex-German submarines N 27 (ex-U 2529), N 28 (ex-U 3035), N 29 (ex-U 3041) and N 30 (ex-U 3515) of the "XXI" type; S 81 (ex-U 1057), S 82 (ex-U 1058), S 83 (ex-U 1064) and S 84 (ex-U 1305) of the VII type; and N 31 (ex-U 2353) of the "XXIII" type, all taken over by the Soviet Navy as war prizes, were in 1963 reported to have been scrapped. For full particulars and photographs of these submarines, and for detailed list of disposals of older submarines which have been discarded now that the U.S.S.R. has built so many submarines of her own designs in her own yards, see 1962-63 and earlier editions.

25 "MV" Class

M 259	M 264	M 269	M 274	M 279
M 260	M 265	M 270	M 275	M 280
M 261	M 266	M 271	M 276	M 281
M 262	M 267	M 272	M 277	M 282
M 263	M 268	M 273	M 278	M 283

Displacement: 350 tons surface, 420 tons submerged
 Dimensions: 167½×16×12 feet
 Guns: 1—45 mm. AA., 1 M.G.
 Tubes: 2—21 inch
 Machinery: Diesels, B.H.P.: 1,000=13 kts. surface
 Electric motors. H.P.: 800—10 kts. submerged
 Oil fuel: 21 tons
 Radius: 4,000 miles at 10 kts. surface, 100 miles at 5 kts. submerged
 Complement: 24

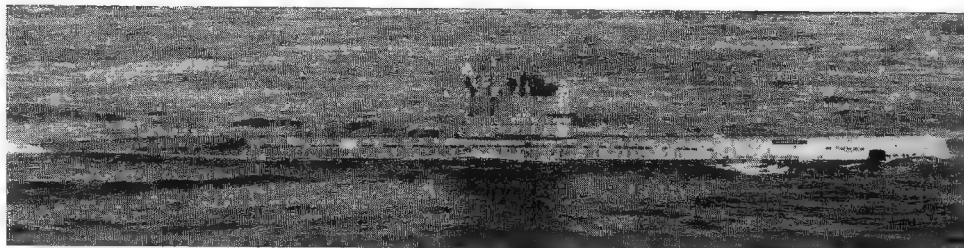
General

Built from 1946 to 1952. Designed for coastal operations. Enlarged and improved editions of the original "M" type. Some were transported in sections on the Trans-Siberian Railway and assembled at Vladivostok for service in the Pacific. The older boats are of little further fighting value.

Disposals

It was reported in 1962 that 28 boats of the "MV" class, M 205, 206, 209, 211, 212, 214, 215, 216, 219, 234, 235 and 237 to 253, having become obsolete and worn out, were laid up for disposal and at least one had been scrapped.

M 200, 201, 202, 203, 254, 255, 256, 257 and 258 were deleted from the list in 1963, and M 204 in 1964.



"W" Class

1965, Skyfotos



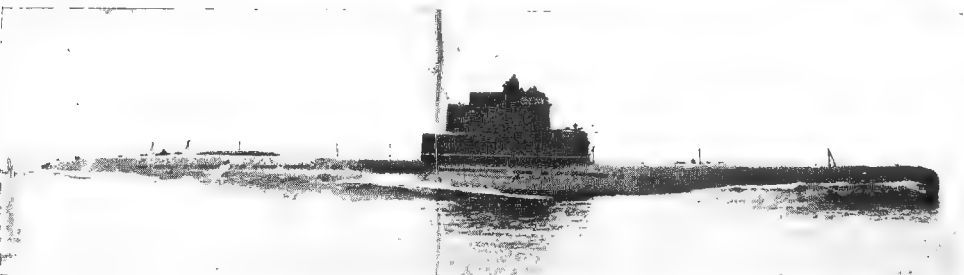
"W III" Class

1959, Antonov Rogov



W.12 ("W III" Class)

1959, Sergei Romanov

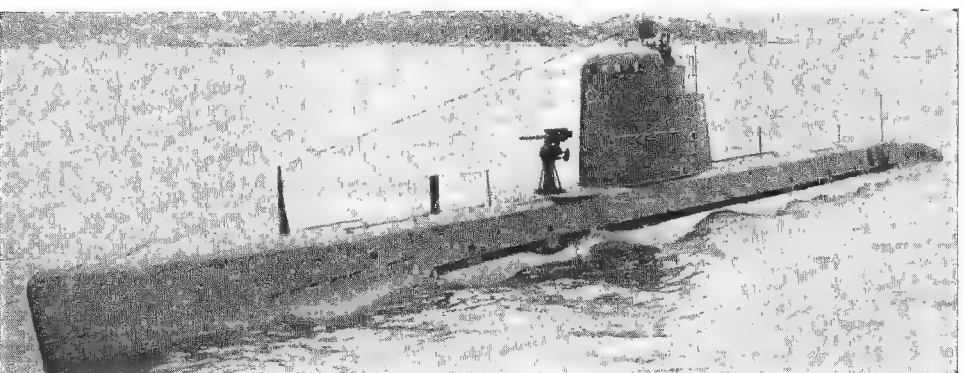


"W" Class



"W" Class

1956, Sergei Romanov



MV Class

SUPPORT AND ESCORT SHIPS

Nuclear Support Type
"Ugra" Class

No. 82
 Displacement: 6,000 tons *light* (9,000 tons *full load*) estimated
 Dimensions: 370 (pp.), 420 (o.a.) \times 65 \times 20 feet
 Guns: 8—85 mm. (4 twin) 2 forward on centre line, 2 athwart after superstructure
 Aircraft: Provision for helicopter
 Machinery: Diesels, 2 shafts, B.H.P.: 7,000 =17 kts.

General

Support and escort ships of the maintenance and repair, supply and depot type probably for servicing nuclear powered submarines. Built on warship lines. Equipped with workshops and staterooms. Provided with a helicopter platform. Fitted with comprehensive radar. Carries a large derrick to handle torpedoes and warheads. Has mooring points in hull about 100 feet apart, but has side doorways as well, possibly for coastal craft and submarines.

Missile Supply Type
"Lama" Class

No. 44
 Displacement: 5,000 tons *light* (7,000 tons *full load*) estimated
 Dimensions: 330 (pp.), 370 (o.a.) \times 60 \times 19 feet
 Guns: 8—57 mm. AA. (2 quadruple) 1 forward, 1 aft
 Machinery: Diesels, 2 shafts, B.H.P.: 5,000 =15 kts.

General

Support and escort ship of the depot and freighting type. Her features indicate a possible missile supply role. Engines sited aft to allow for a very large and high hangar or hold amidships for carrying missiles or weapon spares. The main erection is about 12 feet high above the main deck. There are doors at the forward end with rails leading in. This is surmounted by a turntable gantry or travelling cranes for transferring armaments to combatant ships.

PM 131

Displacement: 5,000 tons *light* (7,000 tons *full load*)
 Dimensions: 330 (pp.), 370 (o.a.) \times 60 \times 19 feet
 Guns: 8—57 mm. AA. (2 quadruple) 1 on the forecastle, 1 on the break of the quarter deck
 Machinery: Diesels, 2 shafts, B.H.P.: 5,000 =15 kts.

General

Support and escort ship for serving missile armed ships. Built on merchant ship lines, and identical in design with No. 44, see above, but numbered in a different series for other deployment. Can apparently be used for salvage and towing. Mooring points along the hull for low vessels such as submarines to come alongside. There appears to be a turntable on the deck, which is built up 2 feet above the main deck. The two cranes are in the stowed position and there appear to be pulleyed lifting arrangements, apparently intended to service the well deck and overside. The well deck is about 40 feet long, enough for a missile to fit horizontally before being lifted vertically for loading in submarines.

Oceangoing Support Type
6 "Don" Class

FEDOR VIDYAEV No. 105
KOTELNIKOV No. 549
MAGOMET GADZHIEV No. 701
 Displacement: 4,750 tons *standard* (6,000 tons *full load*)
 Dimensions: 426 $\frac{1}{2}$ \times 49 \times 17 feet
 Guns: 4—3.9 inch; 8—45 mm. AA.
 Aircraft: Provision for helicopter in No. 701
 Mines: 80 capacity
 Machinery: Diesels. Speed—20 kts.
 Complement: 300

General

Support ships. The design is interesting as a hybrid. It has been described as cruiser, frigate, minelayer, training ship, escort vessel, supply ship, and depot ship. The normal displacement is estimated at 5,000 tons. Kotelnikov, submarine tender, visited Stockholm in 1962 with three submarines.

Photographs

Another photograph of the "Don" class, showing a fully gunned ship forward and aft instead of the modified version with helicopter deck illustrated herewith, appears in the 1960-61 to 1964-65 editions.

Oceangoing Escort Type
"Purga" Class

No. 551
 Displacement: 2,250 tons *standard* (3,000 tons *full load*)
 Dimensions: 325 \times 40 \times 14 feet
 Guns: 4—3.9 inch (single); 8—37 mm. AA. (4 twin); 4—25 mm. AA. (2 twin)
 Mines: 50 capacity
 Machinery: Diesel. Speed—18 kts.
 Complement: 200

General

Sturdy oceangoing vessel of the frigate or large sloop type equipped for minelaying and adapted as gunnery and training ships. These hybrid vessels are fitted with directors similar to those in the "Riga" class frigates.



No. 82

1964, Skyfotos



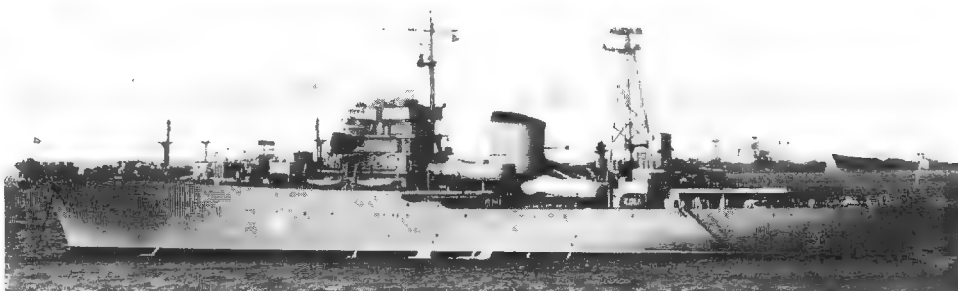
No. 44

Added 1964



PM-131

1964, Skyfotos



"Don" Class No. 701

Added 1965, courtesy Mrs. Ruth Buckler



No. 551

1959

FLEET MINESWEEPERS



T 58 Class

32 "T 58" Class

Added 1964

T 514

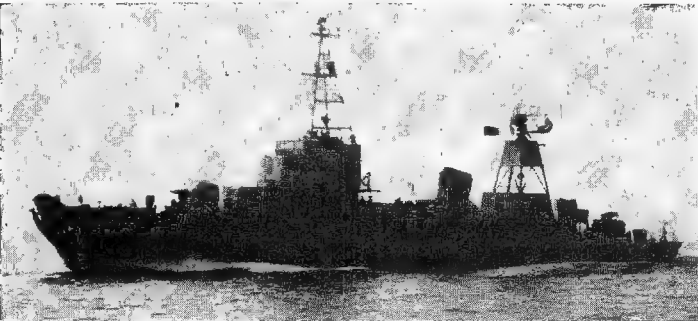
Displacement: 600 tons standard (700 tons full load)
Dimensions: 220×29½×9 feet
Guns: 4—45 mm. AA.
Machinery: Diesels. 2 shafts. Speed=18 kts.

General

A new class of fleet minesweepers built from 1959 onwards. It is reported that the "T 58" and "T 43" classes together numbered 210 ships.

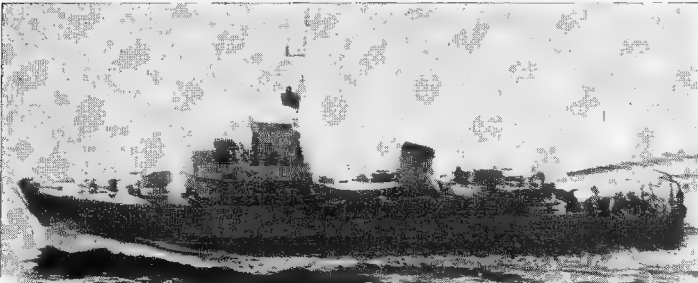
Conversion

Three of this class have been converted to submarine rescue ships with armament and sweep gear removed.



"T 43" Class No. 55 as Radar Picket

1965, col. Breyer



358

1963



No 333

1962, Nigel Peddie

142 "T 43" Class

T 43	T 65	T 76	T 92	T 115	T 306	T 512	T 692
T 54	T 66	T 80	T 95	T 129	T 333	T 533	T 801
T 55	T 74	T 91	T 96	T 157	T 358	T 565	T 802
T 60						T 648	T 864

Displacement: 500 tons standard (600 tons full load)
Dimensions: 200×27½×9 feet
Guns: 4—37 mm. AA., 8—13 mm. AA. M.G.
Machinery: Diesels. 2 shafts. Speed=17 kts.

General

A handy type of moderately fast fleet minesweepers built in 1948-57 in shipyards throughout the Soviet Union. Of 175 ships ten were transferred to Poland, eight to Albania, six to Egypt, four to Indonesia, three to Bulgaria, and two to Syria.

Conversion

Some of this class have been converted into radar pickets (see photograph above).

Disposals of Older Fleet Minesweepers

Of the 34 steel hulled fleet minesweepers of the "Admirable" class transferred from the U.S.A. to the U.S.S.R. during the Second World War under the lend-lease programme, 21 were destroyed, 4 lost and 9 purchased outright by the U.S.S.R.; but the latter were deleted from the list in 1963 as they are no longer operational in their original roles. Four were converted to surveying vessels named *Gidrofom*, *Gidromtr*, *Gidroscop* and *Gorizont*, see later page.

The 24 fast minesweepers of the Modified "Poluhukhin" class, the six fast minesweepers of the "Poluhukhin" class, the two ex-German fleet minesweepers of the "M 43" type, the 29 ex-German fleet minesweepers of the "M 40" type, the 14 ex-German fleet minesweepers of the "M 35" type, the 32 old Soviet fleet minesweepers of the "Tral" ("Fugas") class, and the 20 of the ex-"PSK" type, were all deleted from the list in 1963 as none are still considered operational in their original roles. See photographs and particulars in the 1962-63 and earlier editions.

PATROL VESSELS

"Poti" Class

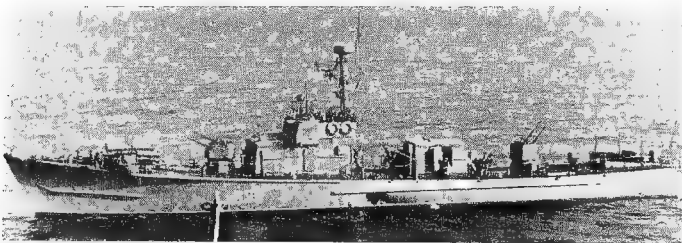
Displacement: 750 tons standard
Dimensions: Length: 197 feet (60 m.)
Guns: 2—57 mm. AA. (1 twin mounting)
Tubes: 4 anti-submarine
A/S weapons: 2—16 barrelled rocket launchers
Machinery: Gas turbines. Speed=28 kts.

General

This new class of medium escort vessels or large patrol vessels of the submarine chaser type is reported to be basically similar in characteristics to the "Petya" class frigates. The prototype ships is reported to have been built in 1961.

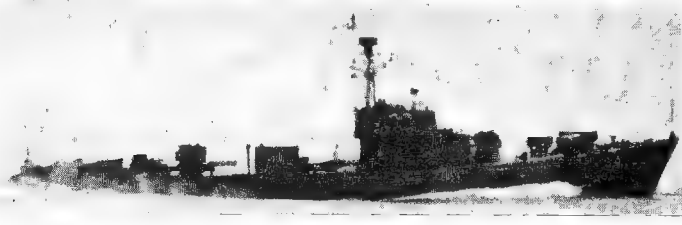
Disposals of Older Escorts

The 13 fast escorts of the "Shtorm" Group: *Molnlya*, *Serp* and *Zarnitsa* ("Improved Shtorm" class), *Burun*, *Grom*, *Metel* and *Vyuga* ("Burun" class), *Groza*, *Smerch* and *Uragun* ("Groza" class) and *Taifun*, *Tutcha* and *Vikhr* ("Taifun class") were deleted from the list in 1963 as they are of no further military value on account of their age.



"S.O.I." Class No. 639

1965, col. Breyer



"S.O.I." Class

1963

No. 639

100 "S.O.I." Class

Displacement: 215 tons light, 250 tons normal
Dimensions: 138 (pp.), 147 (o.a.)×20×10 (max.) feet
Guns: 4-25 mm. (2 twin mountings)
A/S weapons: 4 five-barrelled ahead throwing rocket launchers
Machinery: 3 diesels. B.H.P.: 3,500=28 kts.
Complement: 30

General

Built from 1957 to 1960. Apparently the design is an enlarged version of the ex-U.S. "110-foot" class of SCs built during the Second World War. Steel hull.



No. 497

1955

150 "Kronstadt" Class

No 265	No 357	No 361	No 541
No 356	No 360	No 497	and others

Displacement: 300 tons standard (350 tons full load)
Dimensions: 167½×19½×9 feet
Guns: 1—3.9 inch, 2—37 mm. AA., 3—20 mm. AA.
A/S weapons: Depth charge projectors
Machinery: Diesels. 2 shafts.=23 kts.
Complement: 40

General

Built in 1948-56. Flush decked, large squat funnel, slightly raked, massive block bridge structure. An improved version of the "Artillerist" class. There appear to be two types of this numerically large class of coastal escort vessels. The latest type has a more effective anti-submarine armament. The earlier type carries mines.

Disposals of Older Patrol Vessels

The 11 patrol vessels or submarine chasers of the "Artillerist" class, *Artillerist*, *Elektrik*, *Kirovets*, *Lyotchik*, *Mashinist*, *Mekhanik*, *Motorist*, *Pilot*, *Shтурman*, *Tryumfny* and *Turbinist*, and the 3 old patrol vessels of the "Rubin" class, *Brilliant*, *Rubin* and *Sapfir*, were deleted from the list in 1963, as they are no longer operational.

MINELAYERS

General

The Soviet Navy is capable of a considerable mine-laying effort. Apart from specialised minelayers, most cruisers and destroyers, some submarines and other craft were fitted for minelaying which has always been a highly specialised branch of the Soviet Navy.

Disposals of Minelayers

The old minelayers *Varoshilovsk*, *Murman*, latterly used as a survey ship, *Elizabetha* (ex-Marty, ex-Shtandart), former Imperial Yacht, and the former Japanese *Kamishima* were deleted from the list in 1963, as they are no longer operational. *Ural* (ex-Felix Dzerzhinski) is reported to have been returned to the Merchant Navy. The mining tenders MU 41, 42, 43, 44, 45, 46, 48, 50, 51, 52, 53 and 54 were also deleted. See photographs and particulars in the 1962-63 and earlier editions.

COASTAL MINESWEEPERS

"Vanya" Class

General
A new, numerically large, class of coastal minesweepers of recent construction with wooden hulls reported to be basically similar to the British coastal minesweepers of the "Ton" class, but armed with two 25 mm. AA. guns.

"Yurka" Class

Displacement: 300 tons standard
Dimensions: 153×27×8 feet
Guns: 4—25 mm. AA.
Machinery: Speed=15 kts.

General
Reported to be basically similar to the British coastal minesweepers of the "Ton" class, but constructed of steel.

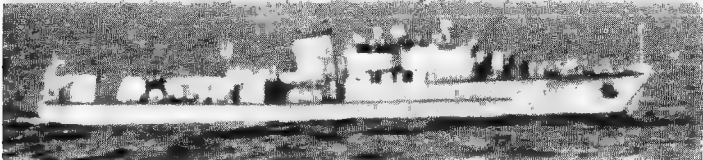


"Sasha" Class No. 118 1965, col. Breyer

150 "Sasha" Class

No. 118 No. 143
Displacement: 180 tons standard (250 tons full load)
Dimensions: 147×20×7 feet
Guns: 1—85 mm. d.p.; 4—25 mm. AA. (2 twin)
Machinery: Diesels. Speed=18 kts.

General
Basically similar to British "Ham" class inshore minesweepers, but of steel construction.



No. 223. "T 460" Series 1962



T 371 Series 125 "T 301" Class Added, 1958

T 371 Series T 460 Series
Displacement: 130 tons standard (180 tons full load)
Dimensions: 100×16×4 feet
Guns: 2—37 mm. AA., 2—25 mm. AA.
Machinery: Diesel. 2 shafts. B.H.P.: 480=10 kts.
Complement: 30

General
Built from 1946 to 1956. Nos. T 341, 356, 376, 442, 459, 460 and others. Several units of this class are reported to have been converted to surveying vessels.
There are two different types of the "T 301" class, the "T 371" group, and the "T 460" group with raking funnel cap (see top photograph).

Disposals
The twelve ex-British motor minesweepers of the "126 ft." type and the three ex-British motor minesweepers of the "105 ft." type were deleted from the list in 1963 as they are no longer considered operational.

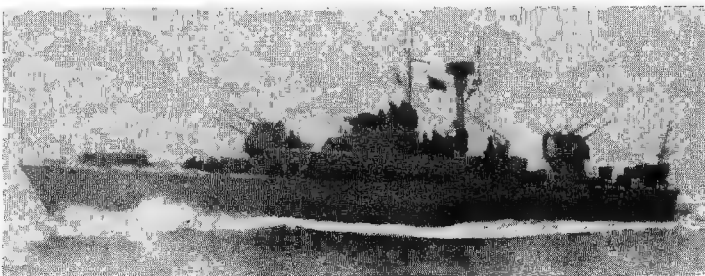
Disposals of Submarine Chasers
Of the 78 United States submarine chasers of the SC type transferred from the U.S.A. to the U.S.S.R. during the Second World War under the lend-lease programme, 4 were lost, 57 were destroyed and 10 were returned to the United States for disposal after the war, two were destroyed before United States observers in the Far East in 1956, and the remaining five were sunk in the presence of United States officials in the Far East on 21 Sep. 1960.

Disposals of River Monitors
The ten surviving very old river monitors were deleted from the list in 1963 as they are no longer considered operational, being worn out and obsolete and of little further military value. See full details in the 1962-63 and earlier editions.

Disposals of Gunboats
The eight remaining gunboats in the Black Sea and Caspian Sea were deleted from the list in 1963 on account of their age. The nine surviving river gunboats in the Amur-Flotilla and Danube Flotilla were also stricken from the list in 1963 as if they are still in service they can no longer be of any considerable military value.

Disposals of Tenders
The two former German aircraft tenders Aeronaut (ex-Falke) and Kodor (ex-Gunter Pluschow) and the 13 tenders, including ex-Japanese vessels, were deleted in 1963 as they are no longer considered operational.

MOTOR TORPEDO BOATS



"P 6" Class No. 814 1965, col. Breyer

Summary
There are believed to be a total of about 350 effective motor torpedo boats of all classes.

"P 12" ("PA 6") Class

Displacement: 73 tons
Dimensions: 82×20×5½ feet
Guns: 4—25 mm. AA. (2 twin)
Tubes: 2—21 inch
Machinery: H.P.: 5,000=42 kts.

General
A new class of motor torpedo boats fitted with hydrofoils. Launched in 1961. Armament varies.

"P 10" ("PA 5") Class

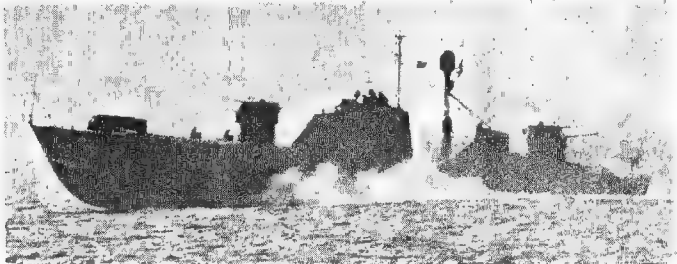
Displacement: 60 tons
Dimensions: 85½×20×6 feet
Guns: 4—25 mm. AA. (two twin)
Tubes: 2—21 inch
Machinery: Gas turbines. Speed=47 kts.

General
Reported to have been built since 1961. Armament varies. Can carry 4—21 inch torpedo tubes and 2—25 mm. AA. guns alternatively.

"P 8" ("PA 4") Class

Displacement: 55 tons
Dimensions: 85½×20×6 feet
Guns: 4—25 mm. AA.
Machinery: Diesel engines. B.H.P.: 2,000=42 kts.

General
A numerically large class of medium motor torpedo boats with aluminium hulls. Launched from 1951 to 1958.



"PA 3" Class Added 1957

"P 6" ("PA 3") Class

Displacement: 50 tons
Dimensions: 82×16½×5½ feet
Guns: 2—25 mm. AA.
Tubes: 2—21 inch
Machinery: Speed=40 kts.

General
A medium type of motor torpedo boats. Launched during 1956-1958. All capable of being converted into gunboats.

"P 4" ("PA 2") Class

Displacement: 45 tons
Dimensions: 82×16½×5½ feet
Guns: 2—25 mm. AA.
Machinery: Speed=40 kts.

General
An intermediate type of motor torpedo boats. Launched during 1952-1958. Have been interchanged as gunboats.

"P 2" ("PA 1") Class

Displacement: 32 tons
Dimensions: 65½×13½×4 feet
Guns: 2—13 mm. AA.
Tubes: 2—18 inch
Machinery: Speed=38 kts.

General
First of the three "PA" types of post-war construction. Launched during 1946-1950. Gun and torpedo armament can be varied according to employment.

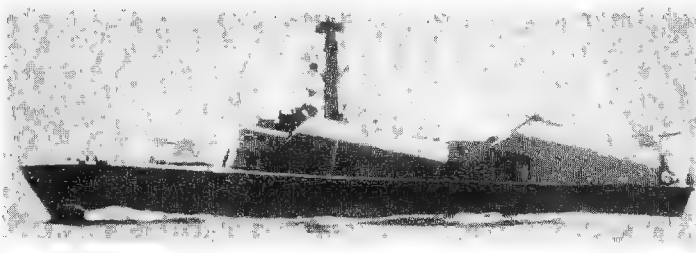
"PB" Class

Displacement: 30 tons
Dimensions: 65½×15½×4 feet
Guns: 2 M.G.
Tubes: 2—21 inch
Machinery: Speed=42 kts.

General
Smaller motor torpedo boats which did not run into the number at first expected. The 50 old patrol boats of the four ex-German "R" types, and the three old submarine chasers of the ex-Japanese types were deleted from the list in 1963 as they are no longer considered to be operational.

Disposals of Motor Launches
Of the once very numerous motor launches of the BMO, MOI, VMV, BKM, PK, TK, MKM and ZK types the surviving units were deleted from the list in 1963, as they are obsolete on account of their age, or are worn out, non-operational, or used for auxiliary purposes.

GUIDED MISSILE PATROL BOATS



"Osa" Class

56 "Osa" Class

1963

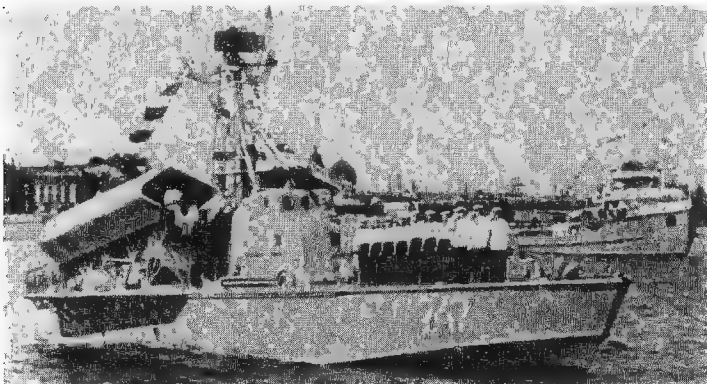
No. 551

No. 745

Displacement: 160 tons standard (200 tons full load)
 Dimensions: 121½ (pp.), 131½ (o.a.)×28×6½ feet
 Guided weapons: 4 large hood type missile launchers in two pairs abreast
 Guns: 4—25 mm. (2 twin, 1 forward, 1 aft)
 Machinery: 3 diesels, B.H.P.; 4,800=35 kts.

General

These later boats, built in 1961-62, have a larger hull and four launchers in two pairs as compared with one pair in the MTB conversions. They are reported to have a surface-to-surface missile range of about 15 miles.



"Komar" Class No. 747

1965, col. Breyer

54 "Komar" Class

Displacement: 75 tons standard (100 tons full load)
 Dimensions: 88 (o.a.)×21×6 feet
 Guided weapons: 2 launchers for missiles of 15 miles range
 Guns: 2—25 mm. AA. (1 twin forward)
 Machinery: 3 diesels, B.H.P.; 4,800=40 kts.

General

A new type of boats converted from "P 6" class motor torpedo boats. Fitted with two surface-to-surface launchers aft in a hooded casing approximately 45 degrees to the deck line. Built in 1960-61.

MOTOR GUNBOATS

Improved BK Type

Displacement: 100 tons
 Dimensions: 128×19×4½ feet
 Guns: 2—37 mm. AA., 2—13 mm. M.G.
 Machinery: Speed=25 kts.

General

Heavily armed gunboats designed for mass production. Improved BK type.

BK Type

Displacement: 85 tons
 Dimensions: 115×18×4½ feet
 Guns: 2—37 mm. AA., 2—13 mm. M.G.
 Machinery: Speed=25 kts.

Improved "1125" Type

Displacement: 70 tons
 Dimensions: 100×17½×4½ feet
 Guns: 1—37 mm. AA., 2 M.G.
 Machinery: Speed=25 kts.

General

Armoured gunboats. Improved version of the 1125 Type with a larger hull.

Early "1125" Type

Displacement: 42 tons standard
 Dimensions: 82×12½×3 feet
 Guns: 2—12 pdr. (3 inch), 1 AA. M.G. (6 in some)
 Machinery: Speed=25 kts.

General

The two 12-pdr. guns are in tank-type turret. Launched in 1944. A photograph appears in 1951-52 to 1964-65 editions.

The shallow draught armoured motor gunboats of the "1124" type were discarded.

Mb 4 Type

Displacement: 61 tons
 Dimensions: 85½×13½×5 feet
 Guns: 2—37 mm. AA.
 Machinery: Speed=24 kts.

General

Medium patrol boats. Designed for coastal anti-submarine duties.

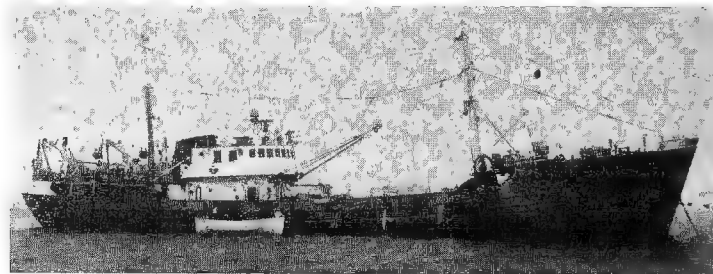
Mb 5 Type

Displacement: 145 tons
 Dimensions: 130×21×5 feet
 Guns: 3—37 mm. AA.
 Machinery: Speed=21 kts.

General

Large patrol boats. Reported to be reconstructed ex-German "R" boats.

DIRECTION TRAWLERS



MUKSUN

1965, courtesy Mr. Michael D. J. Lennon

AMPERMETR
 AMTR
 BAROGRAPH
 BAROMETR
 DEFLEKTOR

GIDROFON
 GIROSKOP
 INCUCALNS
 IZVALTA
 KRENOMETR

LINZA
 LOTLIN
 MUKSUN
 OLOICHAN
 OLONEC

OSTROV
 REDUCTOR
 PROTRACTOR
 SOKOL
 TALIKU

TEODOLIT
 USMA
 VERTIKAL
 ZELUPE
 ZOND

Measurement: 684 tons gross, 226 tons net (Muksun, Sokol); 502 tons gross, 197 tons net (Oloichan, Ostrov, S.R.T.M. 8422); 334 tons gross, 89 tons net (Izvalta, Usma, Zelupe); 293 tons gross, 88 tons net (Incucalns, Taliku, S.R.T. 209, S.R.T. 222, GS 36, GS 43, GS 55)
 Length: 165 feet (ships vary)

General

Reported to be fitted with electronic interception equipment, with a layout designed for intelligence collection. A considerable number of observation trawlers, equipped with radio aerials and direction-finding apparatus have been sighted by British and American warships during international combined sea and air exercises.

LANDING SHIPS

10 Soviet LST Type

Displacement: 850 tons
 Dimensions: 246×39×12 feet
 Guns: 8—37 mm. AA.
 Machinery: Diesels, B.H.P.; 4,000=15 kts.

General

A Soviet type of landing ship basically similar to the British and U.S. types.

4 Soviet LCG Type

Displacement: 550 tons
 Dimensions: 197×34½×8½ feet
 Guns: 4—37 mm. AA., 10 rockets
 Machinery: 2 shafts, S.H.P.; 1,200=12 kts.

General

A medium type of landing ship corresponding to the United States LSMR type.

LANDING CRAFT

Soviet LCT Type

Displacement: 300 tons
 Dimensions: 154×39×6½ feet
 Machinery: Speed=11 kts.

General

A standard type of tank landing craft, basically similar to the British LCT type.

Soviet LC Type

55	115	133	146	148	252	723	729	740	946
113	121	134	147	250	590	725	738	798	964

Displacement: 150 tons
 Dimensions: 115×36×5 feet
 Machinery: Speed=10 kts.

General

A utility type corresponding to the United States LCU type. Carry three tanks.

3 Ex-Italian MZ Type

MZ 778	MZ 780	MZ 781
--------	--------	--------

Displacement: 140 tons
 Guns: 1—20 mm. AA.
 Machinery: Speed=9 kts.

General

Ceded by the Italian Peace Treaty, Nos. 778 and 781 were delivered to the U.S.S.R. on 30 June 1949.

18 Ex-German AFP Type

5	10	11	14	20	26	27	33	42	46	65	74	77	79	80	81	100	102
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Displacement: 150 tons
 Machinery: Speed=10-5 kts.

General

All launched in 1941-44. A number of these are reported to have been discarded.

46 Ex-German MFB-A/C Type

108	169	214	223	265	286	390	457	606	875
109	187	220	239	267	287	391	490	821	876
112	188	221	240	268	319	400	571	840	921
114	204	225	246	269	384	425	600	867	976
164	208	226	258	271	385				

General

All launched in 1941-44. There were many more captured and refloated ex-German landing craft, but the majority are no longer operational. Nos. 1049 and 1103 of the ex-German MFB-D Type are reported to be no longer in active service.

DEPOT SHIPS



ATREK, V(B) -272

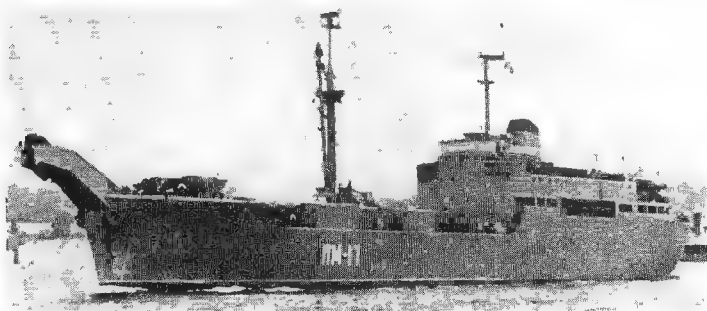
1959, Sergei Romanov

9 "Atrek" Class

AMBURAN	ARARAT	ATREK	AYAT	BAKHMUT
Displacement:	3,500 tons standard (6,700 tons full load)			
Measurement:	3,258 tons gross			
Dimensions:	336×49×20 feet			
Machinery:	Expansion and exhaust turbines. 1 shaft. H.P.: 2,450=13 kts.			
Boilers:	2 water tube			
Radius:	3,500 miles at 13 kts.			

General

Advanced submarine parent ships. Built in 1956-58, and converted to naval use from "Kolomna" class freighters. There are a total of nine of these vessels employed as submarine tenders and replenishment ships. Atrek, fitted with radar homing beacons, is reported to be comprehensively equipped for servicing nuclear powered submarines and ballistic missile submarines.



PM 17

Added 1965, courtesy Al. Navale

3 "Dniepr" Class

Displacement:	3,000 tons standard, 3,900 tons normal (4,200 tons full load)
Dimensions:	325×45×14 feet
Machinery:	Diesels. Speed=12 kts.

General

A bow lift class of repair and depot ships for fleet support and maintenance. Built in 1957-64 as tenders and multi-purpose ships, and equipped with workshops and servicing facilities.

11 "Neva" Class

Displacement:	2,500 tons
Dimensions:	300×42×14 feet
Machinery:	Speed=10 to 12 kts.

General

A specialized class of repair ships equipped with modern machine tools and instruments. Built in 1957-58.

PAYSHERD (ex-Otto Wünche)

Displacement:	4,730 tons
Dimensions:	433×52½×14½ feet
Guns:	4—4.1 inch, 2—37 mm., 12—20 mm.
Machinery:	4 MAN diesels. 2 shafts. B.H.P.: 12,400=20 kts.

General

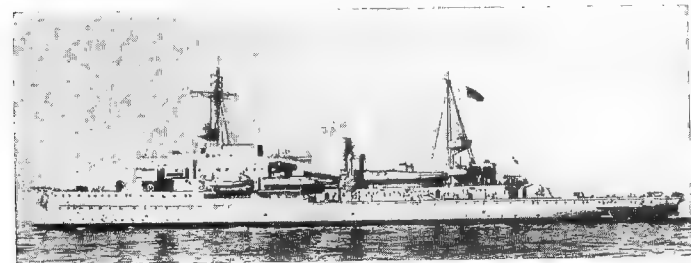
Ex-German. Paysherd was built by Howaldt, Kiel. Launched in 1941.

KUBAN (ex-Waldemar Kophamel)

Displacement:	4,726 tons
Dimensions:	446×52½×14½ feet
Guns:	2—4.1 inch, 2—37 mm. AA.
Machinery:	4 MAN diesels. 2 shafts. B.H.P.: 12,400=20 kts.

General

Ex-German. Launched in 1939. Submarine tender. Salvaged in 1950-51 after being sunk in shallow water by bombing during the Second World War. Underwent repairs and reconditioning in 1951-1957 for further service.



ADOLF LÜDERITZ

Ex-ADOLF LÜDERITZ

Displacement:	2,900 tons standard (3,615 tons full load)
Dimensions:	374×47½×14 feet
Guns:	4—4.1 inch, 2—37 mm., 12—20 mm.
Machinery:	4 MAN diesels, 2 shafts. B.H.P.: 12,400=20 kts.

General

Launched in 1939. Was employed by Germans as depot ship for motor torpedo boats. M.T.B. parent ship. In the Baltic.

Depot Ships—continued



SMOLENSK, V(B) 415

1959

8 "Tovda" Class

INZA (ex-Novoshaktinsk)	KS 3	V(B) 360 (ex-Zangezur)
KALAR V(B) 87	TOVDA	VYJEGRA V(B) 131
KS 2	SMOLENSK V(B) 415	

Displacement:	3,000 tons standard (4,000 tons full load)
Dimensions:	282×39×16 feet
Guns:	6—45 mm. AA. (3 twin mountings)
Machinery:	2 diesels. B.H.P.: 7,000=16 kts.
Radius:	7,000 miles at 16 kts.

General

Polish built ex-tankers converted in 1958 to 1960. Depot and repair ships rated as fleet auxiliaries. Also known as the "Soldek" class, but the NATO designation is "Tovda" class. The old Smolensk (1931) is reported to have been scrapped or returned to the merchant navy.

2 "Desna" Class

CHAZHMA

CHUMIKAN

General

Soviet Missile Range Instrumentation Ships (SMRIS). The "Desna" class have a larger hull than the "Sibir" class and are better equipped. Active since 1963.

4 "Sibir" Class

CHUKOTKA	SAKHALIN	SIBIR	SUCHAN
Displacement:	4,000 tons standard (5,000 tons full load)		
Measurement:	Chukotka 3,800 tons gross, Sakhalin and Sibir, 3,767 tons gross, Suchan 3,710 tons gross		
Dimensions:	493½×56×20 feet (ships vary)		
Guns:	6—45 mm. AA., 2 M.G.		
Machinery:	Triple expansion. 2 shafts. I.H.P.: 3,300=12 kts.		
Radius:	3,300 miles at 12 kts.		

General

Converted bulk ore carriers employed as Missile Range Ships in the Pacific. Sakhalin and Sibir, reported to be of almost equal size, have three bubble-like domes forward and aft, and carry helicopters. Suchan, somewhat smaller, is also equipped with a helicopter flight deck as in Sakhalin and Sibir. Launched in 1957-59. All active since 1959. Sibir is reported to be a new ship. The old Sibir from 1931 may have been scrapped or returned to the merchant navy.

IRTYSH (ex-Kronstadt)

Displacement:	5,880 tons
Dimensions:	328×46×19½ feet
Guns:	4—3 inch, 3—45 mm. AA., 2 M.G.
Machinery:	Triple expansion. 1 shaft. I.H.P.: 1,500=12 kts.
Coal:	430 tons
Radius:	1,500 miles at 12 kts.
Complement:	240

General

Parent ship and general supply ship for submarines in the Baltic. Launched in 1931.

SARATOV

General

Submarine tender and depot ship of the "Anadyr" class. A refrigerated cargo ship and depot ship, Usa, was also reported.



ANGARA

1948

ANGARA (ex-Hela)

Displacement:	2,115 tons standard (2,500 tons full load)
Dimensions:	323×42½×11 feet
Guns:	2—4.1 inch, 1—37 mm. AA., 2—20 mm. AA.
Machinery:	4 MAN diesels. 2 shafts. B.H.P.: 6,300=18 kts.
Radius:	2,000 miles at 15 kts.

General

Former yacht built by Stülcken, Hamburg. Launched in 1939. In the Black Sea. A photograph of Angara appears in the 1947-48 to 1964-65 editions.

VOLGA (ex-Juan Sebastian De Elcano)

Displacement:	9,300 tons
Dimensions:	459×56×22 feet
Guns:	2—3 inch, 3—45 mm. AA., 5 M.G.
Machinery:	Parsons turbines. 2 shafts. S.H.P.: 5,500=15 kts.
Oil fuel:	1,090 tons
Complement:	260

General

Built by Echevarrieta and Larrinaga, Cadiz, in 1928. In the Black Sea. The Soviet name as a merchant ship is not known, but she was probably immediately incorporated in the Soviet Navy. Combined transport and training ship.

Disposal

The very old fishery protection depot ship Vorovskii (ex-Yaroslavna, ex-yacht Lysistrata) was deleted from the list in 1965.

Depot Ships—continued

TEREK (ex-Elbe)
Displacement: 820 tons standard (1,600 tons full load)
Dimensions: 157½×28×11 feet
Guns: 1—3.5 inch, 1—20 mm. AA.
Machinery: 2 sets Linke-Hofmann-Busch 6-cyl. 4-stroke diesels, 2 shafts. B.H.P.: 1,600=15 kts.
Complement: 48

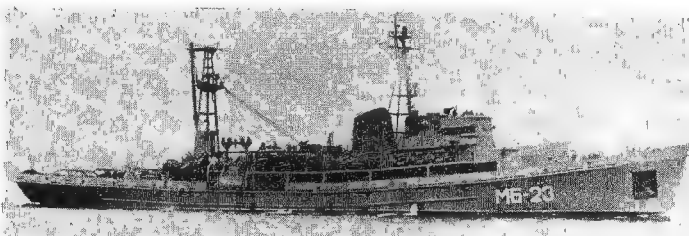
General
Launched in 1931. Ex-German fishery protection vessel. Formerly a depot ship, but latterly a supply ship for "Z" class submarines. A photograph of Terek appears in the 1946-47 to 1963-64 editions.

DONETZ (ex-Weichsel, ex-Syra)
Displacement: 3,974 tons
Dimensions: 309½×44×13½ feet
Guns: 4—20 mm. AA.
Machinery: Triple expansion. I.H.P.: 1,400=10.5 kts.
Boilers: 2 watertube
Coal: 425 tons
Complement: 135

General
Depot ship for submarines. Built by Howaldt, Kiel. Launched in 1923. In the Baltic. A photograph of Donetz appears in the 1947-48 to 1963-64 editions.

Disposals
The very old submarine repair tender and supply ship Smolnyi may have been scrapped, it is reported, and the equally old Emba (ex-Ilimator) is now a merchant vessel. The older depot ships Neva (ex-Essequibo) and Primorye (ex-Hai Yen, ex-Bulgar, ex-Signal) were deleted from the list in 1963 as they were no longer considered of military value. The even older Polyarnaya Zvezda may have been scrapped.

SALVAGE VESSELS



MB 23 Added 1965, courtesy Al. Navale

MB 21 **MB 22** **MB 23**
3 "Prut" Class
Displacement: 2,000 tons standard (3,500 tons full load)
Dimensions: 344½ feet
Guns: 4—57 mm. (quadruple) forward
Machinery: Speed=18 kts.

General
Very large rescue vessels with raked down flush deck and mainmast derrick. Built in 1960.

3 Submarine Rescue Type

VALDAY
General
Three "T 58" class fleet minesweeper hulls were completed as submarine rescue ships at Leningrad in 1961.

4 "Pamir" Class

AGATAN **ALDAN** **ARBAN** **PAMIR**
Measurement: 1,443 tons to 2,032 tons gross
Dimensions: 256 (o.a.)×42×13½ feet
Machinery: Two 10 cyl. 4 str. diesels. 2 shafts. B.H.P.: 4,200=17 kts.

General
Salvage tugs built at A.B. Gävle, Varv, Sweden, in 1959-60. Equipped with strong derricks, powerful pumps, air compressors, diving gear, fire fighting apparatus and electric generators.



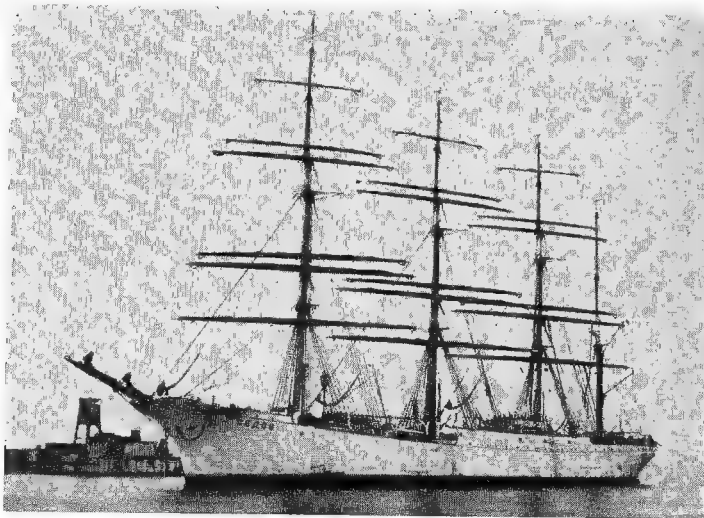
Photo. A. Kull

MB 24 **MB 25** **MB 26**
Displacement: 835 tons
Dimensions: 134½ (w.l.), 143 (o.a.)×34×15 feet
Guns: 1—3 inch d.p., 2—20 mm. AA.
Machinery: 2 B.M. diesels, 2 electric motors 2 shafts. B.H.P.: 1,875=14 kts.
Oil fuel: 187 tons
Complement: 34

General
Salvage and rescue tugs. Built by Livingstone Shipbuilding Co., Orange, Texas, U.S.A. Launched in 1944. Ex-United States ATAs (Ocean Rescue Tugs). In the Baltic.

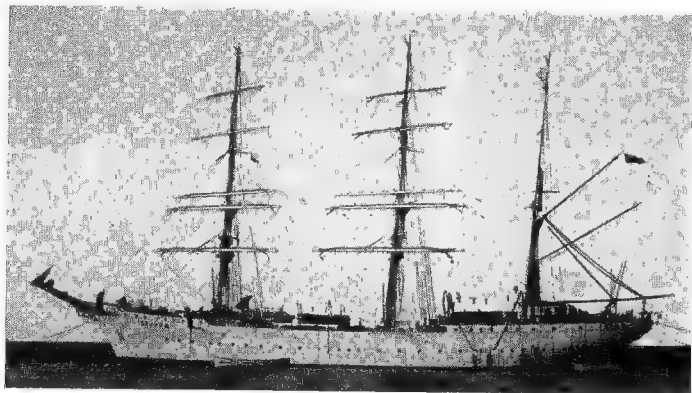
SIGNAL
Displacement: 680 tons
Machinery: Speed: 14 kts.
General
Launched in 1936. Fitted with powerful pumps and other apparatus for salvage. In the Baltic.
Other numbers reported are A 2, 480, 481, 490, 495, 515, 525, 580, 610, 612, 621 and 663. Salvage vessels are designated MSB.

TRAINING SHIPS



SEDOV 1964, courtesy Mr. Michael D. J. Lennon

KRUZENSTERN **SEDOV**
Measurement: 3,064 tons gross
General
Barques. Built in 1921. Employed as sail training ships for midshipmen, cadets and junior seamen.



TOVARISCH 1958, R. M. Scott

TOVARISCH (ex-Gorch Fock)
Displacement: 1,350 tons
Dimensions: 242½×39½×15 feet
Guns: 2—20 mm. AA.
Machinery: MAN diesel, 1 shaft. B.H.P.: 520=8 kts.
Oil fuel: 25 tons
Radius: 3,500 miles at 8 kts.
Complement: 260

General
Barque. Ex-German training ship. Built by Blohm & Voss, Hamburg. Launched in 1933. Sail area: 2,150 sq. yds.

ENISEI **PRAKTIKA** (ex-Passat) **TOBOL** **UCHEBA** (ex-Mousson)
Displacement: 300 tons

General
Three masts. In the Baltic. Sailing vessels for training cadets, boys and volunteers. There are about ten three-masted schooners of 300 tons with one square sail on the foremast of the same class as the Praktika and Ucheba, built in Finland. They are described as very nice little ships.

NYEMAN (ex-Isar, ex-Puma)
Displacement: 3,850 tons
Dimensions: 319×45½×13 feet
Guns: 4—37 mm.
Machinery: Triple expansion. 2 shafts. I.H.P.: 2,000=12 kts.

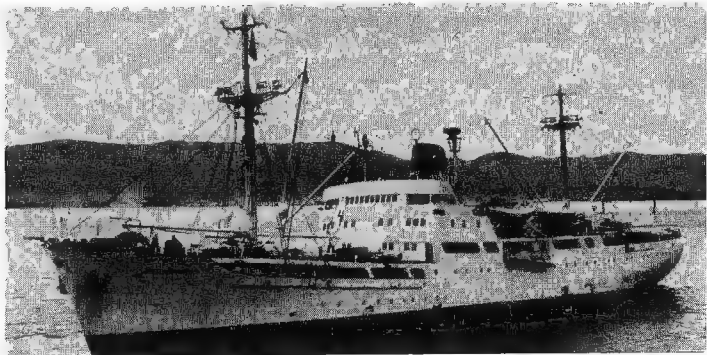
General
Built by Bremen-Vulcan. Launched in 1930. Converted merchant vessel. Former Submarine Depot Ship. Now a training ship in the Baltic. Nyeman is the name of a river in Western Russia.

Ex-CRISTOFORO COLOMBO, Ex-Z18
Displacement: 2,787 tons
Dimensions: 218 (pp.), 257 (o.a.)×48½×20½ feet
Sail area: 18,700 sq. ft.
Machinery: 2 Tosi diesels with electric drive to 2 Marelli motors, 2 shafts. H.P.: 1,600=10 kts.
Oil fuel: 103 tons
Radius: 6,000 miles at 8 kts.
Complement: 280

General
Built at Castellammare. Launched on 4 Apr. 1928. Assigned to the Soviet Navy by the Italian Peace Treaty. Delivered to the U.S.S.R. in Feb. 1949.

Disposals
The old training ships Komsomolets (ex-Okean) and Krasnoye Znamya (ex-Khrabryi) may be scrapped, it is reported. The old training ship Aurora was deleted from the list in 1963 as although she still exists as a prestige tourist relic (famous to the U.S.S.R. as the ship from which the first round of the October revolution was fired) she is no longer considered of any military value.

SURVEY SHIPS



MICHAIL LOMONOSOV 1965, courtesy Mr. Michael D. J. Lennon
MICHAIL LOMONOSOV
Displacement: 5,960 tons
Measurement: 3,897 tons gross, 1,195 tons net
Machinery: Speed=13 kts.
General
Built by Neptun, Rostock in 1957. Operated by the Academy of Science. Equipped with 16 laboratories. Carries a helicopter for survey.

NEREIDA
General
Oceanographic research ship. Reported to be on operational service in Apr. 1965.

VITYAZ
Displacement: 5,700 tons
Machinery: Speed=14.5 kts.
Complement: 137 officers and men including 73 scientists

General
Oceanographic research ship. Equipped with 13 laboratories, 18,400 miles range at 14 kts.

NEVELSKOYE
Dimensions: 275 x 50 x 13 feet

General
A new naval hydrographic survey ship designed and built in the U.S.S.R.

NIKOLAI ZUBOV **POLYUS** **STVOR**
Displacement: 2,674 tons standard (3,021 tons full load)
Dimensions: 295½ x 42½ x 15 feet
Machinery: 2 diesels. Speed=16.7 kts.
Complement: 108 to 120, including 70 scientists

General
Nikolai Zubov, oceanographic research ship, was built at Szczecin Shipyard, Poland in 1964. Visited London in 1965. Employed on survey in the Atlantic.

AKSBERG **OKEANOGRAF**
General
Trawlers converted for surveying. Visited Glasgow in 1964.

GIDROFON **GIDROMTR** **GIDROSKOP** **GORIZONT**
Displacement: 650 tons standard (945 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.) x 33 x 10 feet
Machinery: Diesels, 2 shafts. B.H.P.: 1,440=15 kts.
Complement: 100

General
Former United States steel-hulled fleet minesweepers of the "Admirable" class converted into surveying ships. Pennant numbers G-140, G-145, G-142 and G-139, respectively. The name *Gidrofion* is reported to have been given to an intelligence trawler, so the vessel named above may have been replaced or renamed.



G 482 Erich Gröner
G 402 G 482

Displacement: 550 tons standard (750 tons full load)
Dimensions: 202 x 28 x 9 feet
Machinery: Triple expansion. Exhaust turbine. I.H.P.: 2,150=16 kts.
Boilers: 2 Schulz

General
G 402, G 482 and other ex-German minesweepers are used as survey ships.

ALIDADA **GIDROSTAT** **OLEG KOSHEVOI**
EKHOLOT **LT. SHMIDT** **PRIBOI**
VARIOMETR

General
Pennant Nos. G-165, G-199, G-15, G-151, G-169, G-084 and G-160, respectively.

GIDROLOG **SORAKORAM** **VAL**

General
Former Japanese "Kaibokan" class converted into surveying ships. Pennant numbers G-111, G-127 and G-108, respectively.

CHUKCHA
Displacement: 2,700 tons standard (3,900 tons full load)
Dimensions: 246 x 43½ x 14 feet
Machinery: Triple expansion. I.H.P.: 900=10 kts.
Fuel: 900 tons coal

General
In the White Sea (as is *Lebedj* below). *Ost*, *Vest* and *Zuid* were deleted from the list in 1965. Sister ship *Nord* was lost.

LEBEDJ
Displacement: 1,100 tons
Dimensions: 180½ x 29½ x 16 feet
Guns: 1—37 mm. AA., 2—13 mm. M.G.
Machinery: Triple expansion. I.H.P.: 680=12 kts.

Survey Ships—continued



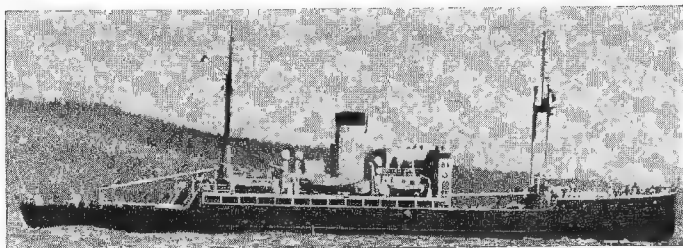
AYTODOR 1965, courtesy Mr. Michael D. J. Lennon

AYTODOR
Measurement: 1,217 tons gross, 448 tons net

General
Built at Budapest, Naval survey (ex-merchant) ship of the "Pesht" class.

KAMCHADEL **PARTIZAN** **POLYARNYI**
Displacement: 1,300 tons
Dimensions: 210 x 32½ x 11 feet
Guns: 2—4 inch, 2 M.G.
Machinery: Triple expansion. I.H.P.: 700=9.5 kts.
Fuel: 400 tons coal
Complement: 80

General
Partizan and *Polyarnyi* were both launched in 1937. In the Far East. Pennant Nos. G-121, G-124 and G-075, respectively.



OKHOTSK Added 1955 **OKHOTSK**

OKEAN
Displacement: 1,500 tons standard (3,200 tons full load)
Dimensions: 265½ x 42½ x 18½ feet
Guns: 3—5.1 inch, 2—3 inch, 2 M.G.
Machinery: Triple expansion, 2 shafts. I.H.P.: 2,400=14 kts.
Complement: 160

General
Launched in 1937-38. In the Far East. Former minelayers converted into survey ships Nos G 098 and G 104, respectively. *Murman* of this class is reported extant.

GIDROGRAF (ex-Hydrografs)
Displacement: 600 tons
Machinery: Speed: 10 kts.

General
Ex-Latvian surveying vessel and tender. Launched in 1918.

KOMPAS
Displacement: 415 tons
Machinery: Speed: 7 kts.

General
Ex-Estonian. Surveying vessel and general utility ship. Launched in 1918.

EKVATOR (ex-Meteor)
Displacement: 1,200 tons
Dimensions: 219½ x 33½ x 12½ feet
Guns: 1—3.5 inch, 1 M.G.
Machinery: 2 sets 8-cyl 4-stroke Diesels. 2 shafts. B.H.P.: 2,200=14.5 kts.

General
Built by Kaiserliche Werft, Danzig. Launched on 18 Jan. 1915. Name means "Equator". Refitted in East Germany in 1957.

AZIMUT
Displacement: 420 tons
Dimensions: 144½ x 28½ x 11 feet
Machinery: Speed=11 kts.

General
Swedish built. Launched in 1914. Fitted with a reinforced stern for icebreaking.

GALS
Displacement: 540 tons
Dimensions: 121½ x 25 x 11 feet
Machinery: Triple expansion. I.H.P.: 240=8 kts
Fuel: 45 tons coal

BAROGRAF
Displacement: 260 tons
Dimensions: 92 x 19 x 12½ feet
Machinery: Triple expansion. I.H.P.: 425=7.5 kts.
Complement: 19

GLOBUS **ZENIT**
General
Both reported to be of the "Samara" class survey ships. *Zenit* means "Zenith."
ALEXSEY CHIRIKOV **FEDOR LITKE**

REPAIR SHIPS

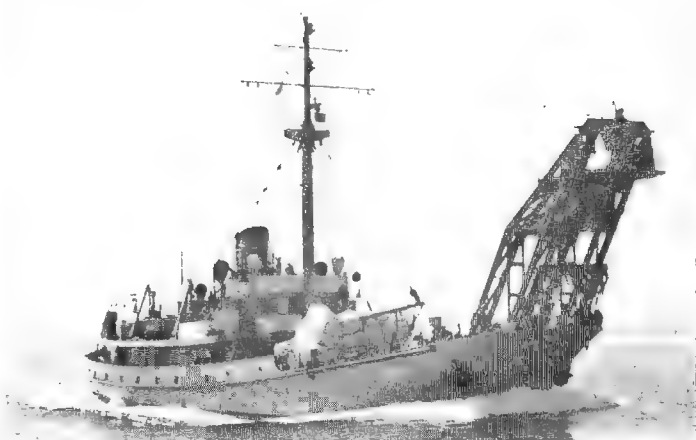
KOMMUNA (ex-Volkhov)
Displacement: 2,400 tons
Machinery: Diesels. 2 shafts. Speed=8 kts.

General
Old submarine salvage vessel. Launched in 1913. Double hull. After having been out of commission for many years she was refitted and modernised at De Schelde Yard, Flushing, Netherlands, in May 1950-July 1951.

ELBRUS
Displacement: 2,600 tons
Dimensions: 302 x 39 x 13½ feet
Guns: 2—3 inch, 1—45 mm. AA.
Machinery: Diesel-electric. H.P.: 2,800=13 kts.
Oil fuel: 180 tons
Complement: 150

General
In the Black Sea. The continued existence of *Umba* (ex-Keret) is doubtful. For "Dneiper" and "Tovda" ("Soldek") class see under Depot Ships on earlier page.)

BOOM DEFENCE VESSELS



No. 13

1959, Antonov Rogov

18 "Neptun" Type

Displacement: 700 tons
 Dimensions: 170×36×12½ feet
 Machinery: Oil fuel. Speed=12 kts.

General

Boom defence vessels or netlayers built in 1957-60 by Neptun, Rostock.

Disposals

The boom defence vessel *Lena* (ex-German *Franz E. Schütte*) was returned to the Merchant Navy. The boom defence vessels *Ladoga*, *Onega* and *Vyatka* were deleted from the list in 1963.

TRANSPORTS

Ex-HAYASAKI

Displacement: 950 tons
 Measurement: 2,166 tons gross
 Dimensions: 190½ (pp.), 194½ (w.f.), 204½ (o.a.)×31×10½ feet
 Guns: 1—3-1 inch, 2—25 mm., 2—13 mm. AA.
 Machinery: 2 diesels. B.H.P.: 1,600=15 kts.

General

Built at Sakurajima. Launched in 1943. Formerly the first Japanese refrigeration ship. A photograph appears in the 1953-54 to 1964-65 editions.

Ex-No. 13

Displacement: 1,800 tons
 Dimensions: 315 (o.a.)×33½×12 feet
 Guns: 2—5½ inch, 26—25 mm. AA., 5 M.G., 42 D.C.
 Machinery: Turbine. S.H.P.: 9,500=22 kts.
 Boilers: 2

General

Former Japanese. Cargo capacity 500 tons for landing 480 marines.

Ex-No. 137

Displacement: 1,129 tons
 Dimensions: 264 (o.a.)×30×10½ feet
 Guns: 1—3-9 inch, 21—25 mm. AA., 12 D.C.
 Machinery: Turbine. S.H.P.: 2,500=16 kts.

General

Former Japanese. Cargo capacity, 218 tons, plus 674 tons of fuel. Accommodation for 120 marines.

Ex-MONTECUCCO (ex-KT 32)

Measurement: 834-4 tons gross
 Dimensions: 221½×39½×9 feet
 Machinery: Triple expansion, 2 shafts. I.H.P.: 2,200=12 kts.
 Coal: 160 tons

General

Former Italian. Built by Ansaldo. Launched on 19 Dec. 1942. Ceded under the Peace Treaty. Delivered to Russia on 23 May, 1949.

P-6 P-7 P-11 P-13 P-15 P-35 P-252 P-368

General

Transports of the above pennant numbers are reported, but no names.

KAMCHATKA

MONGOL

General

"Lake" class. Pennant numbers P-380 and P-242, respectively.

SHIM

OLEKMA

SHILKA

OB

OLGA

USSURIJ (ex-Okhotsk)

VISHERA

General

Pennant Nos. P-247 (Ob), P-250 (Olekma), P-274 (Shilka), P-365 (Ussurij), P-379 (Vishera), Olekma (also rendered as Olenka) is ex-Japanese "Kisak" class. Olga and Ishim are Coast Guard transports.



TM 322

Ex-BASENTO

Ex-ISTRIA

1962, courtesy Godfrey H. Walker, Esq.

Ex-LIRI

Ex-POLCEVERA

General

Small water tankers ceded under Italian Peace Treaty. Volodel was discarded. "Voda" class water tanker Vodoyleyz also reported.

FLEET OILERS



CRYPTON

1965, courtesy Mr. Michael D. J. Lennon

CRYPTON

Measurement: 1,769 tons gross, 559 tons net

General

Naval fuel tanker. Built in 1965. Reported to be in Atlantic Fleet.

"Pevek" Class

POLYARNIK

ZOLOTOY ROG

Dimensions: Length: 400 feet
 Guns: 8—45/57 mm. (2 quadruple)

General

A new type of oiler similar to the U.S. petrol carriers (AOG). Polyarnik has pennant No. P-260.

29 "Khobi" Class

KHOBI

SEYMA

General

Of this class 29 units are reported to have been built from 1957 to 1959. Other names reported are DONETS and TEREK ("Uda" class) and NARA and ORION.



V(B)-19

1959 Sergei Romanov

ALATYR

IRBIT

JAHROMA
KRASNOARMEETSKRASNOFLOTETS
ROSSOSH

General

Pennant Nos.: P-393 (Alatyr), P-256 (Irbit), P-260 (Polyarnik), P-384 (Rossash) and P-335 (Krasnoflotets). The latter is a Coast Guard tanker.

P-264

P-268

P-352

P-380

P-384

General

Fleet oilers of the above numbers are reported, but no names.

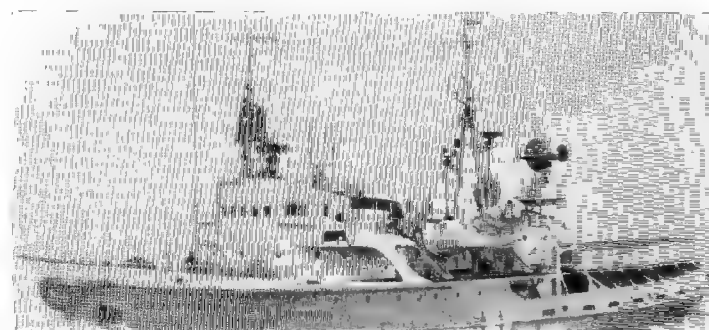
KONDA

VOLKHOV

General

Volkhov of Leningrad or Kozbek class taken over by the Navy as an oiler.

FLEET TUGS



KAPITAN V. FEDETOV

1963

KAPITAN V. FEDETOV

General

A large and powerful tug with a comprehensive array of radar and radio aerials.

DUNAJ

NAEZDNIK

TEREK

TETYUHKHE

ZOLOTOI

General

Pennant Nos. A 486, A 624, A 515, A 495 and A 612, respectively.

MB V-48

MB V-75

MB V-125

MB V-149

MB V-72

MB V-118

MB V-146

MB V-160

General

Photograph in the 1959-60 edition. MB 160 is of the "Okhtenskiy" class.

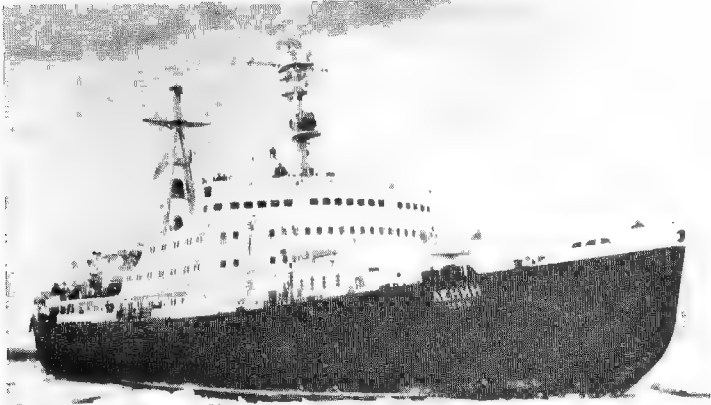
CHF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

General

Letters painted on bows are initial letters of "Chernomorskiy Flot", meaning "Black Sea Fleet". A photograph of CHF 19 appears in the 1959-60 edition.

MOROZ (ex-Soldat). Photograph in the 1959-60 edition. STROGLY ("Orel" class).

ICEBREAKERS



LENIN 1960

2 Projected. Nuclear Powered.

General
To be built from the same plans as *Lenin* but will have only two reactors and will be lighter than 16,000 tons.

1 New Construction. Nuclear Powered

Displacement: 25,000 tons
Dimensions: 525×82×29 feet
Machinery: Nuclear reactors and steam turbines=25 kts.

General
The largest icebreaker ever designed. Under construction. Reported to be designed to operate up to ten helicopters.

1 Large Nuclear Powered Type

LENIN
Displacement: 16,000 tons
Dimensions: 440×90½×25 feet
Aircraft: 2 helicopters
Machinery: 3 pressurised water-cooled nuclear reactors. 4 steam turbines. 3 shafts (no shaft in bow). S.H.P.: 44,000=18 kts. (max.) (see *Engineering*)

General
The world's first nuclear powered surface ship to put to sea. Built at the Kirov Elektrosia Works, Leningrad. Launched on 5 Dec. 1957. Completed and commissioned on 15 Sep. 1959 when she sailed on her maiden voyage into the Baltic. Reported to have accommodation for 1,000 personnel. It is reported that she is actually a parent ship and support tender for the nuclear powered submarine flotilla.

Engineering
The nuclear reactors enable her to steam for 18 months without refuelling. Fuel consumption is reported to be only five ounces daily. The turbines were manufactured by the Kirov plant in Leningrad. Three propellers aft, but no forward screw.

Operational
With her reinforced prow she is able to force a 100 ft. wide ice-free swathe and move continually through solid pack ice 8 feet thick at 3 to 4 knots.



MOSKVA 1960, Wärtsilä-Koncernen A/B Sandvikens Skeppsdocka

3 Large Diesel Powered Type

KIEV Leningrad MOSKVA
Displacement: 12,840 tons standard, 15,360 tons full load
Dimensions: 368½ (w.l.), 400½ (o.a.)×80½×31 (normal), 34½ (max.) feet
Aircraft: 2 helicopters
Machinery: 8 Sulzer diesel-electric. 3 shafts. S.H.P.: 22,000=18 kts.
Oil fuel: 3,000 tons
Radius: 20,000 miles
Complement: 145

General
Largest diesel-electric icebreakers in the world. Designed to stay at sea for a year without returning to base. Built by Wärtsilä-Koncernen A/B Sandvikens Skeppsdocka, Helsinki. The concave embrasure in the ship's stern is a housing for the bow of a following vessel when additional power is required. There is a landing deck for helicopters and hangar space for two machines. *Moskva* was launched on 10 Jan. 1959 and completed in June 1960. *Leningrad* was laid down in Jan. 1959, launched on 24 Oct. 1959, and completed in 1962. *Kiev* was completed in 1964.

Engineering
Eight generating units of 3,250 B.H.P. each comprising eight main diesels of the Wärtsilä-Sulzer 9 MH 51 type which together have an output of 26,000 electric H.P. Four separate machinery compartments. Two engine rooms, four propulsion units in each. Three propellers aft. No forward propeller. Centre propeller driven by electric motor of 11,000 H.P. and each of the side propellers by motors of 5,500 H.P. Two Wärtsilä-Babcock & Wilcox boilers for heating and donkey work.

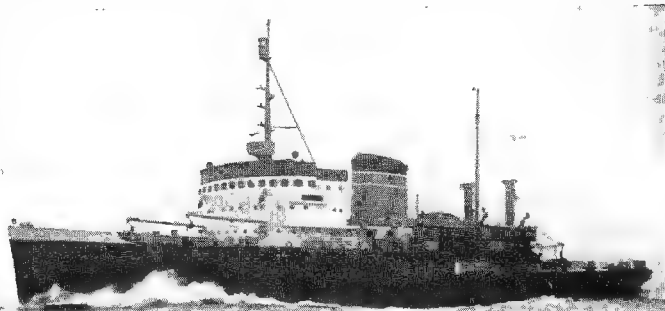
Operational
Moskva has four pumps which can move 480 metric tons of water from one side to the other in two minutes to rock the icebreaker and wrench her free of thick ice.

POLLUX (ex-Pollux)

Displacement: 4,500 tons
Dimensions: 262½×63×23 feet
Machinery: Triple expansion. I.H.P.: 6,000=13 kts.
Boilers: 4

General
Built in the Netherlands by Smit, Rotterdam, in 1943. *Pollux* was German name.

Icebreakers—continued



KAPITAN BELOUSOV 1955

3 "Kapitan" Class

KAPITAN BELOUSOV KAPITAN MELECHOV KAPITAN VORONIN
Displacement: 4,375 to 4,415 tons
Dimensions: 265 (w.l.), 263 (o.a.)×63½×23 feet
Machinery: Diesel-electric, 6 Polar 8 cyl. B.H.P.: 10,500=16.5 kts.
Oil fuel: 740 tons

General
Kapitan Belousov was laid down at the end of 1952 and completed in Sep. 1954. All built by Wärtsilä-Koncernen A/B, Sandvikens Skeppsdocka, Helsinki. The ships have four screws, two forward under the forefoot and two aft.

Name	Measurement	Launched	Completed
<i>Kapitan Belousov</i>	5,360 tons gross	19 Oct. 1954	1955
<i>Kapitan Melechov</i>	4,000 tons gross	1956	1957
<i>Kapitan Voronin</i>	3,416 tons gross	1955	1956

ALIOSHA POPOVICH (ex-German *Eisvogel*)

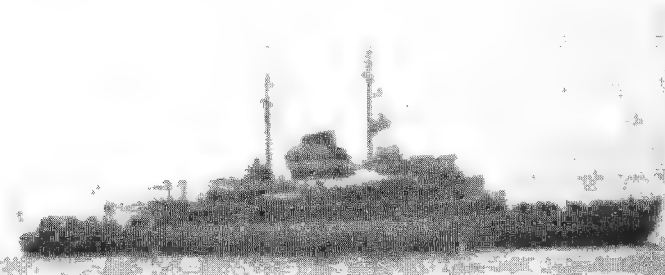
Displacement: 2,090 tons
Dimensions: 200×49½×21½ feet
Machinery: 2 Triple expansion. I.H.P.: 3,200=13.5 kts.
Boilers: 1

General
Former German icebreaker. Built by Aalborgs. Launched in 1941. In the White Sea.

ILIYA MUROMETS (ex-German *Eisbar*)

Displacement: 1,918 tons
Dimensions: 180½×49½×21½ feet
Machinery: Triple expansion. I.H.P.: 1,600=15 kts.
Boilers: 1

General
Former German icebreaker. Built by Eriksberg, Gothenburg. Launched in 1941.

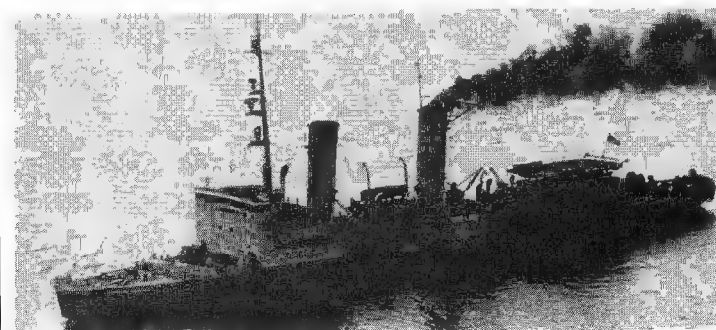


PERESVET 1959

PERESVET (ex-Castor)

Displacement: 5,150 tons
Dimensions: 295½×69×22 feet
Machinery: Triple expansion. 3 shafts. I.H.P.: 9,600=15 kts.
Boilers: 4 Wagner

General
Former German icebreaker. Built by Schichau, Danzig. Launched in 1939.



MIKOYAN after refit 1965, col. Breyer

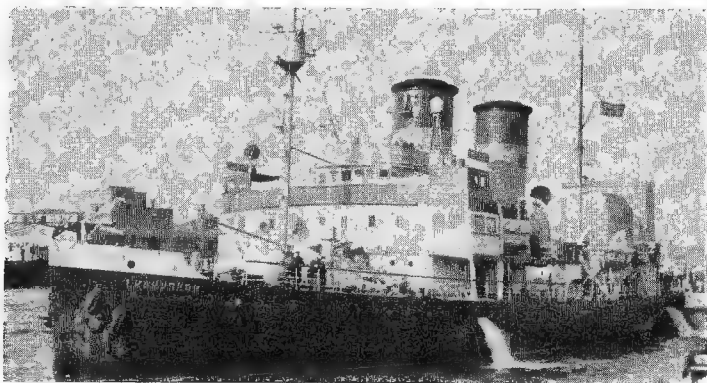
4 "Stalin" Class

ADMIRAL LAZAREV (ex-Yosif Stalin) LAZAR KAGANOVICH
ADMIRAL MAKAROV (ex-Vyacheslav Molotov) MIKOYAN (ex-Otto Schmidt)
Displacement: 11,000 tons
Measurement: 4,866 tons gross
Dimensions: 335½ (pp.), 351 (o.a.)×75½×22 feet
Aircraft: 1 helicopter (see *General*)
Machinery: Triple expansion, with diesel-electric propulsion for cruising. 3 shafts. H.P.: 10,050=15.5 kts.
Boilers: 9
Fuel: 4,000 tons coal, and diesel oil
Complement: 142

General
3 aircraft and 1 catapult were included in the design of these large and very powerful icebreakers. All are in the White Sea.

Name	Builders	Launched	Completed
<i>Lazar Kaganovich</i>	Baltic Works, Leningrad	30 Apr. 1937	1938
<i>Mikoyan</i>	Nikolayev	1938	1939
<i>Admiral Makarov</i>	Baltic Works, Leningrad	8 Mar. 1939	1940
<i>Admiral Lazarev</i>	Baltic Works, Leningrad	14 Aug. 1937	1939

Icebreakers—continued



SIBIRYAKOV

1954, courtesy P. Bronsveld

SEVMORPUT

Displacement: 6,000 tons
Machinery: 3 shafts. Speed: 11.5 kts.

General

Icebreaker of medium size and low power. Built at Leningrad. Launched in May 1937.

SIBIRYAKOV (ex-Jääkarhu)

Displacement: 4,825 tons
Dimensions: 246 × 63 × 21 feet
Machinery: Triple expansion. 3 shafts. I.H.P.: 9,200 = 15 kts.
Boilers: 8. Oil fuel

General

Built by Smit, Rotterdam, and launched in 1926. Formerly Finnish. (Jääkarhu means 'icebear'). Appropriated by the U.S.S.R.

Ex-KRISJANS VALDEMARAS

Displacement: 2,800 tons
Measurement: 1,932 tons gross
Dimensions: 196½ × 55½ × 22 feet
Machinery: Triple expansion. I.H.P.: 5,200 = 15 kts.
Fuel: 350 tons coal
Complement: 55

General

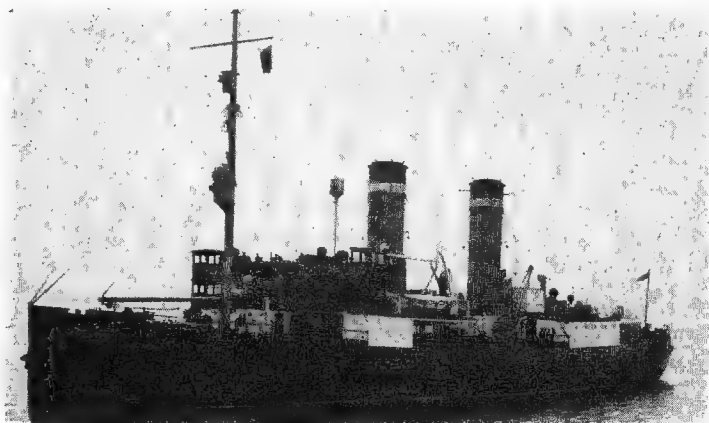
Built by Beardmore and launched in 1925. Renamed now. Formerly a Latvian ship. Photograph in the 1957-58 and earlier editions.

KRASSIN (ex-Sviatogor)

Displacement: 9,300 tons
Measurement: 4,902 tons gross
Dimensions: 297 (w.l.), 323½ (o.a.) × 71 × 26 feet
Machinery: 3 sets triple expansion. 3 shafts. I.H.P.: 10,000 = 15 kts.
Boilers: 10 single-ended
Fuel: 3,200 tons coal
Complement: 190

General

Large and powerful icebreaker. Built by Armstrong and launched in 1917. In the Baltic. Photograph in 1951-52 and earlier editions.



VLADIMIR ILYICH

1954, Keith P. Lewis

VLADIMIR ILYICH (ex-Lenin, ex-Aleksandr Nevskii)

Displacement: 6,260 tons
Measurement: 3,828 tons gross
Dimensions: 273 (w.l.), 281 (o.a.) × 64 × 19 (mean), 20½ (max.) feet
Machinery: 3 sets triple expansion. 3 shafts. I.H.P.: 8,000 = 12 kts.
Boilers: 8
Fuel: 1,200 tons coal
Complement: 122

General

Built by Armstrong. Launched in 1917. Refitted on the Mersey in 1946-47. In the Baltic.

MALYGIN (ex-Voima)

Displacement: 2,070 tons
Dimensions: 210½ × 46½ × 16½ feet
Machinery: Triple expansion. 1 shaft. I.H.P.: 4,100 = 13.5 kts.

General

Former Finnish icebreaker. Built by Sandvikens and launched in 1917. In the Baltic. Photograph in the 1957-58 and earlier editions.

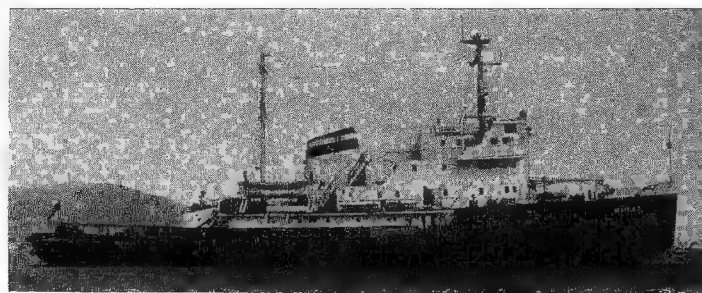
STEPAN MAKAROV (ex-Knyaz Pozharski)

Displacement: 3,150 tons standard
Measurement: 2,156 tons gross
Dimensions: 236 (pp.), 248 (o.a.) × 57 × 22 feet
Machinery: Triple expansion. 3 shafts. I.H.P.: 6,400 = 14.5 kts.
Boilers: 6
Fuel: 700 tons coal

General

Built by Swan, Hunter and Wigham Richardson, Ltd., Wallsend-on-Tyne, and launched in 1916. In the Black Sea. Photograph in the 1951-52 and earlier editions.

Icebreakers—continued



LEDOKOL 7

1965, courtesy Mr. Michael D. J. Lennon

LEDOKOL 7

Measurement: 2,305 tons gross

General

Built at Leningrad in 1964. In the Black Sea at Odessa.

DOBRINYA NIKITICH

Displacement: 2,460 tons standard
Measurement: 1,664 tons gross
Dimensions: 200 (pp.), 211 (o.a.) × 50½ × 20 feet
Machinery: Triple expansion. 2 shafts. I.H.P.: 4,000 = 14 kts.
Boilers: 6
Fuel: 370 tons coal

General

Built by Swan, Hunter and Wigham Richardson, Ltd., Wallsend-on-Tyne, and launched in 1916. In the Black Sea. Photograph in the 1951-52 and earlier editions.

VOLYNETS (ex-Suur Töll, ex-Vainamoinen, ex-Volynets, ex-Tsar Mikhail Fyodorovich)

Displacement: 4,000 tons
Dimensions: 236½ × 57 × 18½ feet
Machinery: 3 sets triple expansion. 3 shafts. I.H.P.: 5,800 = 13.5 kts.
Fuel: 800 tons coal

General

Former Estonian icebreaker. Launched in 1914. In the Baltic. Photograph in the 1957-58 and earlier editions.

SADKO (ex-Lintrose)

Displacement: 2,000 tons
Measurement: 1,613 tons gross
Dimensions: 255 × 37½ × 21 feet
Machinery: Triple expansion. I.H.P.: 3,500 = 14 kts.
Boilers: 4

General

Built by Swan, Hunter and Wigham Richardson, Ltd., Wallsend-on-Tyne. Launched in 1913. Transferred from the Canadian Government in 1915. Sunk during the First World War off the Arctic coast of the U.S.S.R. where she lay for many years until raised and refitted in the White Sea. Photograph in the 1957-58 and earlier editions.

FYODOR LITKE (ex-Kanada, ex-Earl Grey)

Displacement: 3,400 tons
Measurement: 2,216 tons gross
Dimensions: 250 (pp.), 265 (o.a.) × 48 × 17½ (mean), 22½ (max.) feet
Machinery: Triple expansion. 2 shafts. I.H.P.: 6,000 = 17 kts.

General

Built by Vickers and launched in 1909. Transferred from the Canadian Government in 1915. Refitted on the Mersey in 1947-48. In the White Sea. Photograph in the 1951-52 and earlier editions.

TAIMYR

Displacement: 1,290 tons standard
Machinery: Speed: 10.5 kts.

General

Small and low powered icebreaker. Launched in 1909. In the White Sea. Photograph in the 1951-52 and earlier editions.

GEORGII SEDOV (ex-Beothic)

Displacement: 3,217 tons
Measurement: 1,383-1,588 tons gross
Dimensions: 240½ × 36 × 16½ feet
Machinery: Triple expansion. I.H.P.: 3,000 = 13.5 kts.
Fuel: 500 tons coal

General

Built in 1909, by D. & W. Henderson & Co. and by Napier & Miller, respectively. Both purchased in 1915. In the White Sea. In 1939 Georgii Sedov achieved a record latitude in her ice-bound drift northward.

VLADIMIR RUSANOV (ex-Bonaventure)**MONTCALM**

Measurement: 3,270 tons
Measurement: 1,432 tons gross
Dimensions: 245 × 40½ × 15½ feet
Machinery: 2 sets triple expansion. 2 shafts. I.H.P.: 3,225 = 14 kts.
Boilers: 4 Babcock & Wilcox
Fuel: 425 tons coal

General

Built by Napier & Miller and launched in 1904. Transferred from the Canadian Government in 1942. In the Far East. It is doubtful if this ship is still operational.

YERMAK

Displacement: 8,800 tons
Measurement: 4,955 tons gross
Dimensions: 305 (pp.), 320 (o.a.) × 71½ × 25 (mean), 28 (max.) feet
Machinery: 3 sets triple expansion. 3 shafts aft and 1 forward. I.H.P. 9,500 = 14 kts.
Boilers: 10 S.E.
Fuel: 2,100 tons coal
Complement: 112

General

Built by Armstrong and launched in 1898. Name is that of the conqueror of Siberia. Refitted in Antwerp in 1949-50. In the Baltic. This ship is now very old and may be scrapped in the near future. Photograph in the 1947-48 to 1964-65 editions.

Construction

The majority of the above icebreakers are immensely strong in framing and scantlings, with exceptionally thick plating, and decks strengthened to permit guns being mounted in wartime.

Disposals

The very old and small icebreaker Davidov (ex-Krasnyi Oktyabr, ex-Nadyazhnyi) was discarded and replaced by a new icebreaker.

Administration

Inspector General of the Navy:
Rear-Admiral Pedro Torres Negreira

URUGUAY

Naval Attaché in Washington:
Captain Oscar P. Llorens

Mercantile Marine

Lloyd's Register of Shipping
37 vessels of 103,618 tons gross

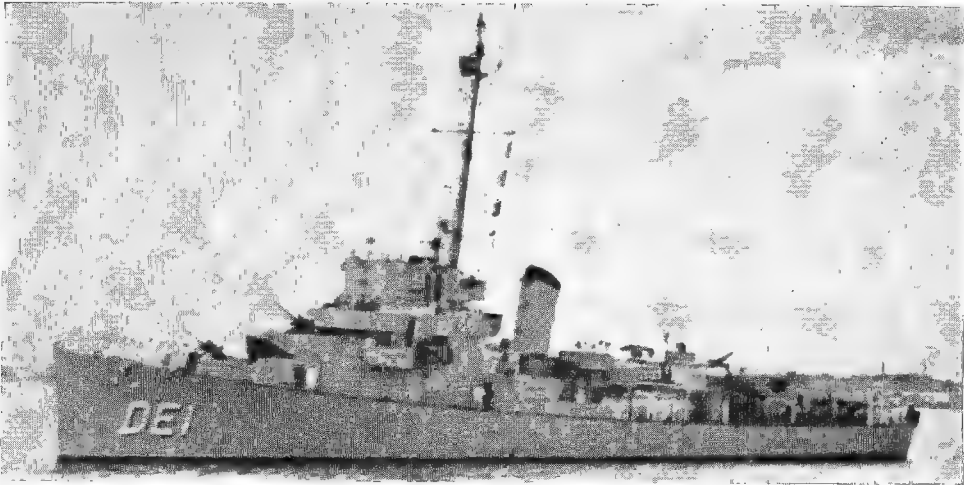
FRIGATES

2 Ex-U.S. Destroyer Escort Type
(Escort Vessels, DE)

ARTIGAS (ex-U.S.S. *Bronstein*, DE 189)
URUGUAY (ex-U.S.S. *Baron*, DE 166)

Name:	Artigas	Uruguay
Pennant No.:	DE 2	DE 1
Builders:	Federal S.B. & D.D. Co., Port Newark	Federal S.B. & D.D. Co., Port Newark
Launched:	14 Nov. 1943	9 May 1943
Completed:	13 Dec. 1943	5 July 1943
Displacement:	1,240 tons standard (1,900 tons full load)	
Dimensions:	306 (o.a.)×37×17 feet	
Guns:	3—3 inch, 2—40 mm. AA.	
A/S weapons:	Hedgehog, 8 D.C.T., 1 D.C.R.	
Machinery:	Diesel-electric, 2 shafts. B.H.P.: 6,000=19 kts.	
Oil fuel:	315 tons (95 per cent)	
Radius:	8,300 miles at 14 kts.	
Complement:	159	

General
Former United States destroyer escort of the "Bostwick" class, transferred to Uruguay in 1951. The three 21 inch torpedo tubes (triple) and the ten 20 mm. AA. guns were removed. A photograph of *Artigas* appears in the 1953-54 to 1957-58 editions).



URUGUAY

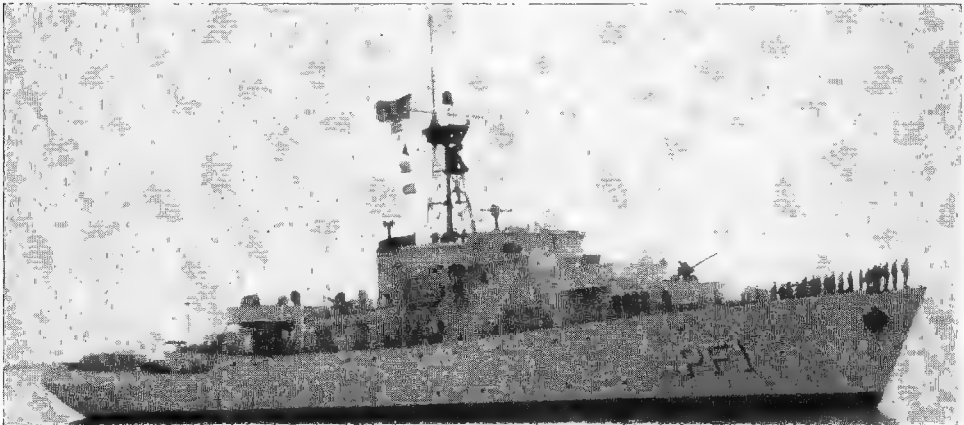
1957, Uruguayan Navy, Official

Ex-British Corvette Type
Training Ship (*Buque Escuela*)

MONTEVIDEO (ex-H.M.C.S. *Arnprior*, ex-H.M.S. *Rising Castle*)

Pennant No.:	PF 1
Builders:	Harland & Wolff, Ltd., Belfast
Laid down:	21 June 1943
Launched:	8 Feb. 1944
Completed:	26 June 1944
Displacement:	1,010 tons standard (1,600 tons full load)
Dimensions:	251½×36½×17½ (max.) feet
Guns:	1—3 inch, 2—40 mm. AA., 4—20 mm. AA.
A/S weapons:	Hedgehog, 2 D.C.T., 1 D.C.R.
Machinery:	Triple expansion, 190 r.p.m. I.H.P.: 2,750=17 kts.
Boilers:	2 water tube, oil fired
Oil fuel:	480 tons (max.)
Radius:	5,400 miles at 9.5 kts.
Complement:	90

General
Former British and Canadian "Castle" class corvette (frigate). Employed as a training ship.



MONTEVIDEO

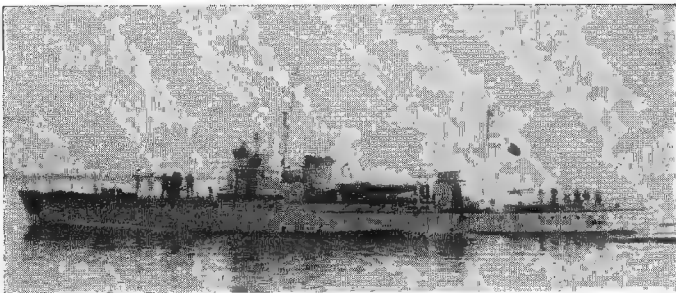
1956, Uruguayan Navy, Official

SURVEYING VESSEL

CAPITAN MIRANDA

Displacement:	516 tons standard (549 tons full load)
Dimensions:	148 (pp.), 179 (o.a.)×26×10½ feet
Machinery:	1 M.A.N. diesel. B.H.P., 500=11 kts.
Oil fuel:	37 tons
Complement:	52

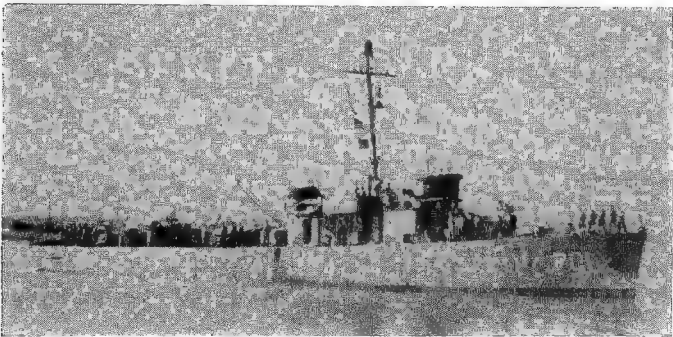
General
Built by Sociedad Española de Construcción Naval, Matagorda, Cadiz. Launched in 1930. A photograph appears in the 1932 to 1957-58 editions. Pennant No.: AGS 10.



RIO NEGRO

1957, Uruguayan Navy, Official

PATROL VESSELS



MALDONADO

1957, Uruguayan Navy, Official

1 Ex-U.S. PC Type

MALDONADO (ex-U.S.S. *PC 1234*)

Displacement:	280 tons standard (450 tons full load)
Dimensions:	165 (pp.), 170 (w.l.), 173½ (o.a.)×23×10½ feet
Guns:	1—3 inch d.p., 1—40 mm., 3—20 mm.
A/S weapons:	1 M.T., 4 D.C.T.
Machinery:	2 G.M. diesels, 2 shafts. B.H.P.: 3,750=19 kts.
Complement:	65

General
Former United States submarine chaser. Built in New York. Launched on 3 Apr. 1943. Transferred from the U.S. Navy in 1944. Pennant No. PC 1 (ex-B 1). There is also the small and old rescue motor launch *R 1* (25 tons, 63 feet, launched in 1944), see full particulars in the 1961-62 edition.

2 "Paysandu" Class

RIO NEGRO (22 Aug. 1935)	SALTO (11 Aug. 1935)
Displacement:	150 tons standard (180 tons full load)
Dimensions:	137×18×10 feet
Guns:	1—40 mm. AA.
Machinery:	2 Germania diesels. B.H.P.: 1,000=17 kts.
Oil fuel:	18 tons
Radius:	4,800 miles at 10.7 kts.

General
Training ships, Pennant Nos. PR 3, PR 2, respectively. Built by Cantieri Navali Riuniti, Ancona, Italy. Launch dates above. *Paysandu* was stricken in 1963.

OILER



PRESIDENTE ORIBE

1963, Uruguayan Navy, Official

PRESIDENTE ORIBE

Measurement	17,920 tons gross, 28,267 tons deadweight
Dimensions:	587½ (pp.), 620 (o.a.)×84½×33 feet
Machinery:	1 Ishikawajima turbine. S.H.P.: 12,500=16.75 kts.
Boilers:	2 Ishikawajima-Harima Foster Wheeler type
Complement:	76

General
Built by Ishikawajima-Harima Ltd. Delivered to the Uruguayan Navy on 22 Mar. 1962. Radius: 16,100 miles at 16 kts. Pennant No. A 09.

VENEZUELA

Administration

Commander General of the Navy:
(Chief of Naval Operations)

Rear-Admiral Juan P. Torrealba M.

Chief of Naval Staff:

Rear-Admiral Jesus Carbonel J.

Naval Attaché in London:
Captain Armando de Pedraza Pereira.

Naval Attaché in Washington:
Rear-Admiral Guillermo Ginnari T.

Personnel

1965: 3,200 naval officers and men
2,500 Marine Corps

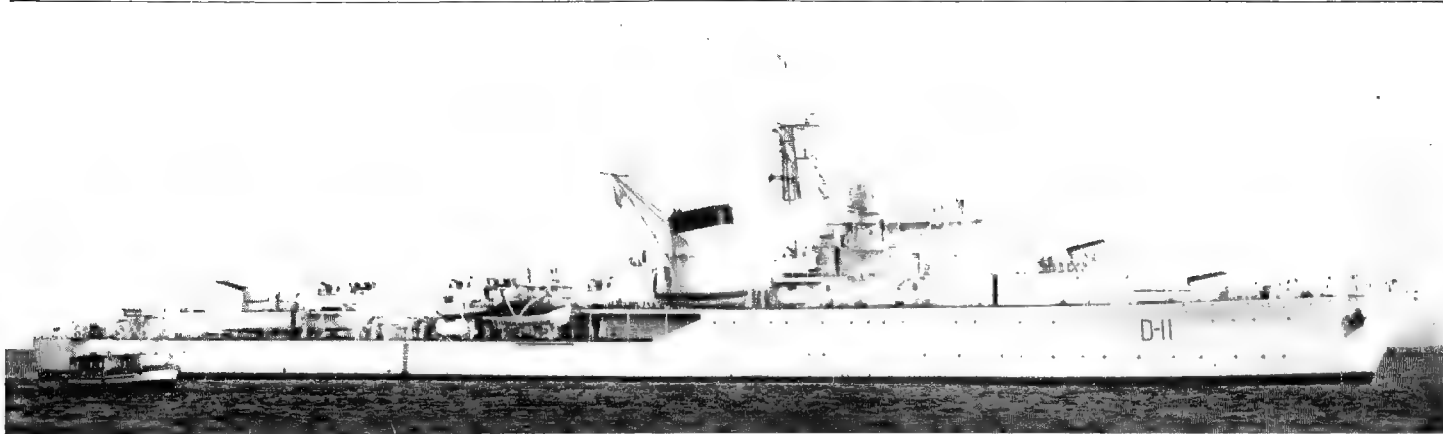
New Construction Programme

Programme includes 1 cruiser, 2 to 4 submarines
and several minesweepers.

Mercantile Marine

Lloyd's Register of Shipping:
81 vessels of 329,795 tons gross

DESTROYERS



NUEVA ESPARTA

1962. Venezuelan Navy, Official

3 British Vickers-Built
"Nueva Esparta" Class

Displacement: 2,600 tons standard (3,300 tons full load)
Dimensions: 384 (w.l.), 402 (o.a.) x 43 x 12½ feet
Guns: 6—4.5 inch (3 twin), 16—40 mm. (8 twin)
Tubes: 3—21 inch (triple)
A/S weapons: 2 D.C.T., 2 D.C. racks, Squids
Machinery: in Nueva Esparta and Zulia
Parsons geared turbines. 2 shafts.
S.H.P.: 50,000=34.5 kts.
Boilers: 2
Complement: 254 (18 officers, 236 men)
General
All built in Great Britain by Vickers, Barrow-in-Furness. Nueva Esparta and Zulia were ordered in 1950. Cost of these first two ships was £5,000,000. Air conditioned. Two engine rooms and two boiler rooms served by a single uptake. The 4.5 inch guns are fully automatic. Nueva Esparta and Zulia were refitted at the Palmers Hebburn Works of Vickers in May—Dec. 1959, and modernised at New York Navy Yard in 1960 to improve anti-submarine and anti-aircraft capabilities. Aragua was refitted by Palmers Hebburn in 1964-65.



ZULIA		Added 1957, Wright & Logan		
Name	Pennant No.	Laid down	Launched	Completed
ARAGUA	D 31	29 June 1953	27 Jan. 1955	14 Feb. 1956
NUEVA ESPARTA	D 11	24 July 1951	19 Nov. 1952	8 Dec. 1953
ZULIA	D 21	24 July 1951	29 June 1953	15 Sep. 1954

FAST FRIGATES

6 Italian Ansaldo Built
"Almirante Clemente" Class
(Light Destroyer Type)

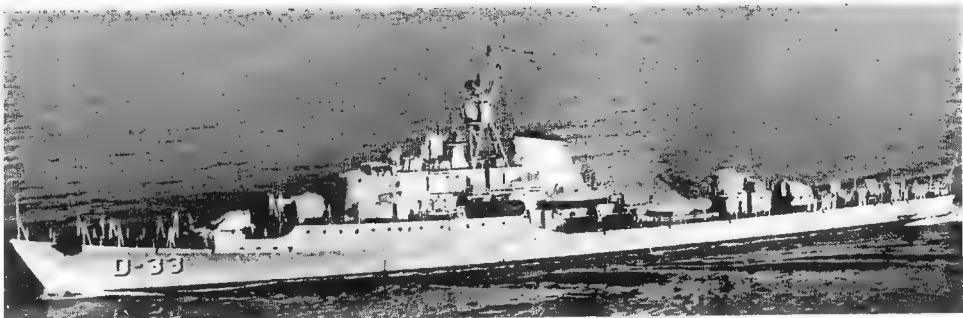
Displacement: 1,300 tons standard (1,500 tons full load)
Dimensions: 320½ (o.a.) x 35½ x 8½ feet
Guns: 4—4 inch (102 mm.) AA. (2 twin); 4—40 mm. AA., 8—20 mm. AA.
Tubes: 3—21 inch (triple)
A/S weapons: 2 Hedgehogs or squid, 4 D.C.T.
Machinery: 2 sets geared turbines. 2 shafts.
S.H.P.: 25,000=34 kts.
Boilers: 2 Foster Wheeler
Oil fuel: 350 tons
Radius: 3,500 miles at 17 kts.
Complement: 162 (12 officers, 150 men)
General
All built in Italy by Ansaldo, Leghorn. The first three were ordered in 1953. Three more were ordered in 1954. Aluminium alloys were widely employed in the building of all superstructure. All the ships are fitted with Denny-Brown fin stabilisers and air conditioned throughout the living and command spaces.
Modernisation
Almirante José García, Almirante Brion and General José de Austria were refitted by Ansaldo, Leghorn, in 1962 to improve their anti-submarine and anti-aircraft capabilities.
Gunnery
The 4 inch anti-aircraft guns are fully automatic and radar controlled.



GENERAL JOSÉ TRINIDAD MORAN		1962. Venezuelan Navy, Official		
Name	Pennant No.	Laid down	Launched	Completed
ALMIRANTE CLEMENTE	D 12	5 May 1954	12 Dec. 1954	1956
ALMIRANTE JOSÉ GARCÍA	D 33	12 Dec. 1954	12 Oct. 1956	1957
ALMIRANTE BRION	D 23	12 Dec. 1954	4 Sep. 1955	1957
GENERAL JOSÉ DE AUSTRIA	D 32	12 Dec. 1954	15 July 1956	1957
GENERAL JOSÉ TRINIDAD MORAN	D 22	5 May 1954	12 Dec. 1954	1956
GENERAL JUAN JOSÉ FLORES	D 13	5 May 1954	7 Feb. 1955	1956

Fast Frigates—continued

“Almirante Clemente” Class
—continued



ALMIRANTE JOSÉ GARCIA

1965, Venezuelan Navy, Official

Photographs of Almirante Clemente and General José Trinidad Moran appear in the 1957-58 edition, of General Juan José Flores in the 1957-58 to 1961-62 editions, and of General José de Austria in the 1962-63 to 1964-65 editions.

Disposals of “Flower” Class
Of the former Canadian “Flower” type frigates, Carabobo (ex-Kamsack) was lost on passage from Canada, Libertad (ex-Battleford) ran aground off western Venezuela on 12 Apr. 1949 and was discarded, Independencia (ex-Dunvegan) was stricken from the Navy List in 1953, Federacion (ex-Amherst) was stricken in 1956, and Constitucion (ex-Algoma), Patria (ex-Oakville) and Victoria (ex-Wetaskiwin) were officially deleted from the Navy List in 1962.

SUBMARINES

I+I Ex-U.S. “Balao” Class

CARITE (ex-U.S.S. Tilefish, SS 307)



CARITE

1965, Venezuelan Navy, Official

Pennant No.: S 11
Builders: Mare Island Naval Shipyard, California
Launched: 25 Oct. 1943
Commissioned: 28 Dec. 1943

Displacement: 1,526 tons standard, 1,816 tons surface (2,425 tons submerged)
Dimensions: 312 (o.a.)×27×17 feet
Tubes: 10—21 inch (6 bow, 4 stern)
Machinery: Diesels. 2 shafts. B.H.P.: 6,400=20 kts. (surface)
Electric motors. H.P.: 4,600=10 kts. (submerged)
Oil fuel: 300 tons
Radius: 12,000 miles at 10 kts.
Complement: 80

General
Former United States submarine of the “Balao” class. Purchased by Venezuela in 1960 after a three to four months overhaul in the United States. Transferred from the U.S. Navy at San Francisco on 4 May 1960. Overhauled in San Francisco Navy Yard in 1962.

Transfer
The transfer of a second submarine by the U.S.A. to Venezuela was approved by the U.S. House Armed Services Committee in Aug. 1965.

PATROL VESSELS



PC Type

Added 1962, United States Navy, Official

12 Ex-U.S. PC Type

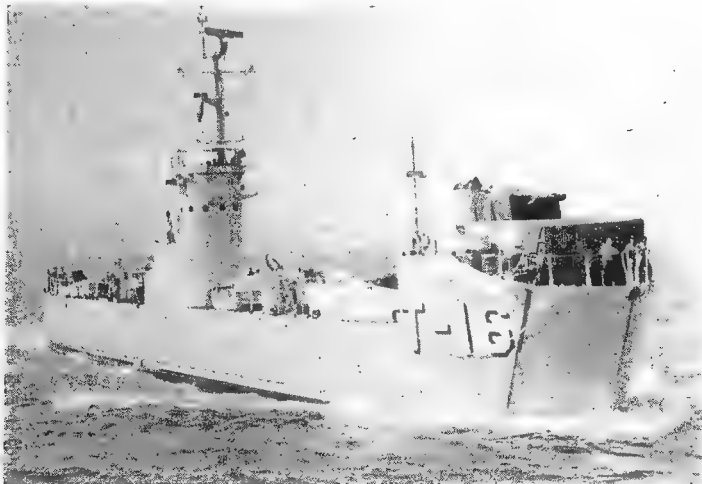
ALBATROS P-04 (ex-U.S.S. PC 582)
ALCATRAZ P-03 (ex-U.S.S. PC 565)
CALAMAR P-02 (ex-U.S.S. PC 566)
CAMARON P-08 (ex-U.S.S. PC 483)
CARACOL P-06 (ex-U.S.S. PC 1170)

GAVIOTA P-10 (ex-U.S.S. PC 619)
PETREL P-05 (ex-U.S.S. PC 1176)
PULPO P-07 (ex-U.S.S. PC 465)
MEJILLON P-01 (ex-U.S.S. PC 487)
TOGOGO P-09 (ex-U.S.S. PC 484)

Displacement: 280 tons standard (430 tons full load)
Dimensions: 170 (w.l.), 173½ (o.a.)×23×10½ feet
Guns: 1—3 inch d.p., 1—49 mm. AA., 5—20 mm. AA.
A/S weapons: Provision for 4 D.C.T.
Machinery: 2 Fairbanks-Morse diesels. 2 shafts. B.H.P.: 2,800=20 kts.
Complement: 65

General
Mejillon was refitted and overhauled by Diques y Astilleros Nacionales, Venezuela, prior to commissioning in the Venezuelan Navy, and from 1962 onwards more ships of this type underwent similar preparation to join the fleet. Altogether twelve of these former United States submarine chasers of the steel-hulled “173-ft” type were purchased from the U.S.A. in Oct. 1960 for anti-smuggling patrols, namely:—Cooperstown, PC 484, Dalhart, PC 619, Edenton, PC 1077, Gilmer, PC 565, Honesdale, PC 566, Larchmont, PC 487, Lenoir, PC 582, Minden, PC 1176, Paragould, PC 465, Rolla, PC 483, Tarrytown, PC 1252, and Towell, PC 572, and with these the Navy is assuming Coast Guard functions.

MEDIUM LANDING SHIPS



LOS TESTIGOS

1962, Venezuelan Navy, Official

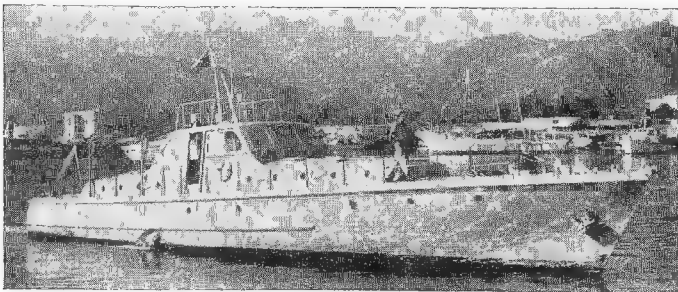
Ex-U.S. LSM Type

LOS FRAILES T 15 (ex-U.S.S. LSM 544) LOS ROQUES T 14 (ex-U.S.S. LSM 543)
LOS MONJES T 13 (ex-U.S.S. LSM 548) LOS TESTIGOS T 16 (ex-U.S.S. LSM 545)

Displacement: 743 tons beaching (1,095 tons full load)
Dimensions: 196½ (w.l.), 203½ (o.a.)×34½×8½ feet
Guns: 1—40 mm. AA., 4—20 mm. AA.
Machinery: Direct drive diesels. 2 shafts. B.H.P.: 2,800=12 kts.
Complement: 59

General
All built by Brown Shipbuilding Co., Houston, Texas, in 1945. (The former United States medium landing ships LSM 370, LSM 542, LSM 543, LSM 544, LSM 545 and LSM 548 were sold to Venezuela under MAP in Aug. 1958, but only the latter four have been commissioned in the Venezuelan Navy.)

COAST GUARD VESSELS



RIO CABRALES 1956, Venezuelan Navy, Official

RIO APURE RIO CABRALES RIO GUARICO RIO NEVERI
RIO ARAUCA RIO CARONI RIO NEGRO RIO TUY

Displacement: 38 tons
Dimensions: 82 x 15 x 4 feet
Machinery: 2 Mercedes-Benz M.B. 820 Bb diesels. 1,400 r.p.m.
B.H.P.: 1,350=27 kts., 24=25 kts. cruising

General
All built by the Chantiers Navales de l'Estareles, Cannes, during 1954-56.

RIO SANTO DOMINGO
Displacement: 40 tons
Dimensions: 70 x 15 x 6 feet
Machinery: 2 General Motors diesels. B.H.P.: 1,250=24 Kts.

RIO TURBIO
Displacement: 40 tons
Dimensions: 81½ x 15 x 7½ feet
Machinery: 4 General Motors diesels. B.H.P.: 880=20 kts.

GOLFO DE CARIACO
Displacement: 37 tons
Dimensions: 65 x 18 x 9 feet
Machinery: Motors. Speed=19 kts.

Disposals
The survey launch Torbes, and the repair launch BT 1 were officially stricken from the list in 1962. Caribe was scrapped in 1956.

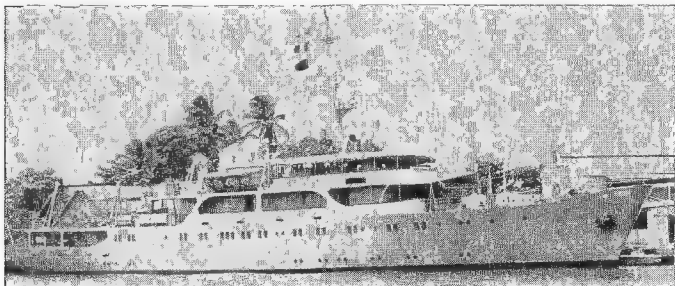
MOTOR LAUNCH

TORBES LA 12 (ex-Felipe Santiago Esteves, LC 12, ex-Brion, CS 2)
Displacement: 47 tons
Dimensions: 83 x 16 x 4 feet
Guns: 1—20 mm., 4 D.C.T.
Machinery: 2 petrol engines. 2 shafts. B.H.P.: 1,200=15 kts.
Complement: 10

General
Launched in 1937. Ex-U.S. Coast Guard cutter 56196. Acquired in 1944. Of wooden construction. Brion was renamed Felipe Santiago Esteves in 1957 when LC pennant number was allocated and renamed Torbes, No. LA 12, in 1962. Antonio Diaz LC 11 (ex-CS 1, ex-56193), Arismendi, LC 14 (ex-CS 4, ex-56194) and Briceno Mendez, LC 13 (ex-CS 3, ex-56195) were stricken in 1960. A photograph of Briceno Mendez appears in the 1952-53 to 1960-61 editions.

TRANSPORTS

PUNTA CABANA T 17 T 19
General
Three small troop carriers of about 3,000 tons with a speed of 17 knots are reported for the Army.

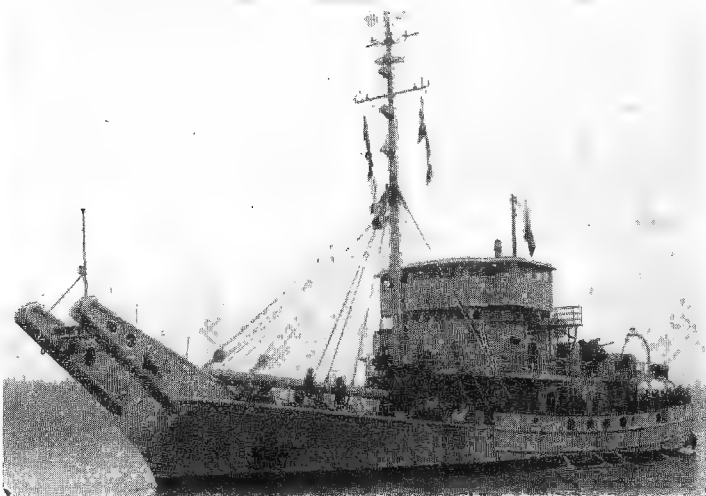


LAS AVES 1956, Venezuelan Navy, Official

LAS AVES (ex-Dos de Diciembre) T-12
Displacement: 944 tons
Dimensions: 234½ (o.a.) x 33½ x 10 feet
Machinery: 2 diesels. 2 shafts. B.H.P.: 1,600=15 kts.
Radius: 2,250 miles at 15 kts.

General
Launched by Chantiers Dubigeon, Nantes-Chantenay, France, in 1954. Light transport for naval personnel. Originally named Dos de Diciembre. Redesignated T 12 in 1958. Renamed Las Aves in 1961.

SURVEY VESSELS



PUERTO SANTO 1962, Venezuelan Navy, Official (U.S. Coast Guard Photo)

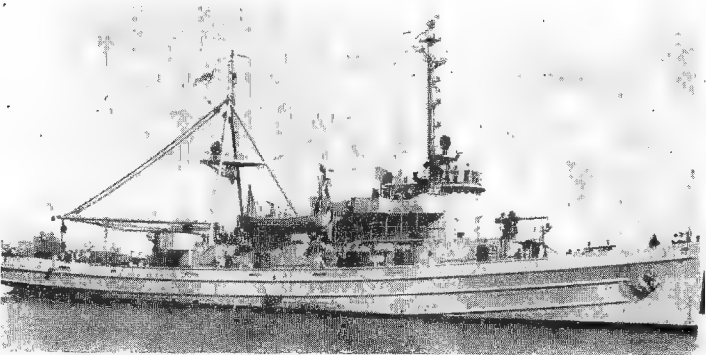
PUERTO DE NUTRIAS H-02 (ex-U.S.S. Tunxis, AN 90)
PUERTO MIRANDA H-03 (ex-U.S.S. Waxesaw, AN 91)
PUERTO SANTO H-01 (ex-U.S.S. Marietta, AN 82)
Displacement: 650 tons standard (785 tons full load)
Dimensions: 146 (w.l.), 168½ (o.a.) x 33½ x 10½ (max.) feet
Machinery: Busch-Sulzer diesel-electric. 1 shaft. B.H.P.: 1,500=12 kts.
Complement: 46

General
Former United States netlayers of the "Cohoes" class. Puerto Santo was built by Commercial Iron Works, Portland, Oregon. Laid down on 17 Feb. 1945 and launched on 27 Apr. 1945. Transferred on loan from the U.S. Navy in Jan. 1961 under MAP and converted into a hydrographic survey vessel and buoy tender by the United States Coast Guard Yard, Curtis Bay, Maryland, in Feb. 1962. The ship is unarmed, but she originally carried one 3-inch, 50 cal. dual purpose gun.
Puerto de Nutrias and Puerto Miranda were built by Zenith Bridge Co. Duluth, Minn., launched in 1964 and completed in 1945. They were leased-loaned to Venezuela in 1963 under the Military Aid Program.

REPAIR SHIP

QUIRINUS ARL 39 (ex-U.S.S. LST 1151)
Displacement: 1,625 tons light, 3,960 tons trials (4,100 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.) x 50 x 11½ (max.) feet
Guns: 8—40 mm. AA. (two quadruple mountings)
Machinery: General Motors diesels. 2 shafts. B.H.P.: 1,800=11.6 kts.
Complement: 21 officers, 232 men
General
Former United States landing craft repair ship. Built by Chicago Bridge and Iron Co., Seneca, Illinois. Laid down on 3 Mar. 1945. Loaned to Venezuela in June 1962.

TUGS



FELIPE LARRAZABAL 1962, Venezuelan Navy, Official

FELIPE LARRAZABAL (ex-U.S.S. Talowa, ATF 116)
Displacement: 1,235 tons standard (1,675 tons full load)
Dimensions: 195 (w.l.), 205 (o.a.) x 38½ x 12 (mean), 15½ (max.) feet
Guns: 1—3 inch, 4—40 mm. AA., 2—20 mm. AA.
Machinery: 4 sets diesels with electric drive. B.H.P.: 3,000=16.5 kts.
Complement: 85

General
Former United States fleet ocean tug of the "Apache" class. Built by United Engineering Co., Alameda, California. Laid down on 28 July 1943, launched on 17 May 1944, and completed on 26 Dec. 1944. Transferred on loan from the U.S. Navy in Feb. 1962. Pennant No. R 11. The former tug Felipe Larrazabal (ex-U.S.S. Discoverer, ex-U.S.C.G. Auk, AM 38) was stricken in 1962.

FERNANDO GOMEZ (ex-U.S.S. Dudley, YTM 744, ex-Diana, ex-U.S. Army ST 873)
Displacement: 161 tons
Dimensions: 80 x 19 x 8 feet
Machinery: Clark Diesel, 6-cylinder, 315 r.p.m. B.H.P.: 380=15 kts.

General
Pennant No. R 12. Crew 10. A photograph in the 1952-53 to 1957-58 editions. (The tugs Esteban Rojas, Dina and Caracas were stricken from the list in 1958.)

GENERAL JOSE FELIX RIBAS R 13 (ex-U.S.S. Oswegatchie, YTB 515)
General
Large harbour tug. Transferred on 4 June 1965 at San Diego, Calif. There is also the medium harbour tug ex-U.S.S. Sassacus (YTM-193) loaned by U.S.A.

VIETNAM

Administration

Chief of Naval Operations:

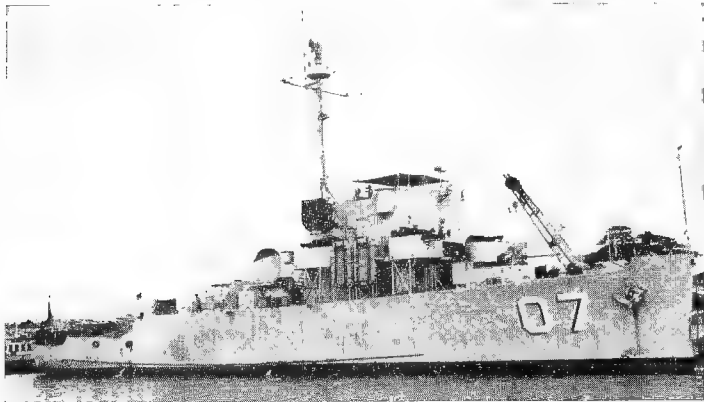
Personnel

The Vietnamese Navy (Hải-Quân Việt-Nam) was established on 1 Jan. 1955.

Rear-Admiral Chung tân Càng

1965: 21,031 officers and non-commissioned personnel (including Marine Corps)

ESCORTS



DONG DA II

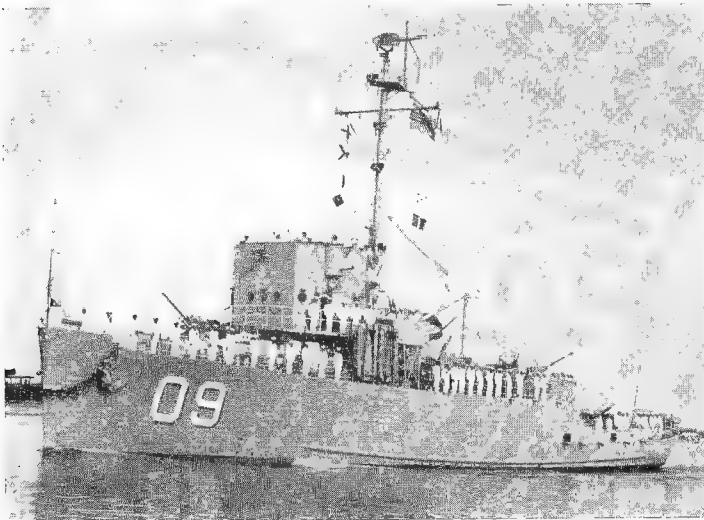
1963, Vietnamese Navy, Official

1 Ex-U.S. PCE Type

DONG DA II HQ 07 (ex-U.S.S. Crestview, PCE 895)

Displacement: 640 tons standard (903 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.) × 33 × 9½ feet
Guns: 1—3 inch, 50 cal. d.p.; 6—20 mm. AA.
Machinery: G.M. diesels, 2 shafts, B.H.P.: 2,000=15 kts.
Complement: 9 officers, 90 men

General
Former United States escort of the "180 ft." PCE type. Built by the Willamett Iron and Steel Corporation, Portland, Oregon. Laid down on 2 Dec. 1942, launched on 18 May 1943, and completed on 30 Oct. 1944. Served successively in the U.S. Navy as escort vessel, submarine chaser, weather ship, naval reserve training ship, and operational anti-submarine warfare development and equipment evaluation ship. Transferred from the U.S. Navy to the Vietnamese Navy at Philadelphia Naval Base on 29 Nov. 1961 and renamed Dong Da II.



KY HOA

1963, Vietnamese Navy, Official

4 Ex-U.S. MSF Type

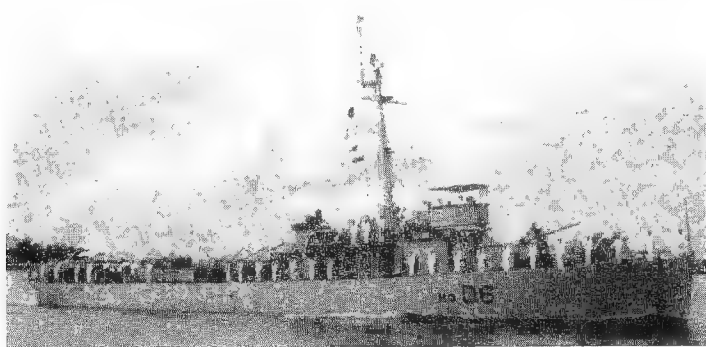
CHI LANG II HQ 08 (ex-U.S.S. Gayety, MSF 239) 19 Mar. 1944
KY HOA HQ 09 (ex-U.S.S. Sentry, MSF 299) 15 Aug. 1943
NHUT TAO HQ 10 (ex-U.S.S. Serene, MSF 300) 31 Oct. 1943
CHI LINH HQ 11 (ex-U.S.S. Shelter, MSF 301) 14 Nov. 1943

Displacement: 650 tons standard (945 tons full load)
Dimensions: 180 (w.l.), 184½ (o.a.) × 33 × 9½ feet
Guns: 1—3 inch, 50 cal. d.p.; 2—40 mm. AA.; 8—20 mm. AA. (4 twin)
A/S weapons: 2 D.C.T.
Machinery: Diesels, 2 shafts, B.H.P.: 1,710=14 kts.
Complement: 11 officers, 93 men

General
Former United States steel-hulled fleet minesweepers of the medium MSF (ex-AM) type, built by the Winslow Marine Railway and Shipbuilding Company, Winslow, Washington. Laid down on 14 Nov. 1943, 16 May 1943, 8 Aug. 1943 and 16 Aug. 1943, and completed on 23 Sep. 1944, 30 May 1944, 24 June 1944 and 9 July 1944 respectively. Launch dates above. Gayety was transferred from the U.S. Navy to the Vietnamese Navy in June 1962 under the Military Aid Program, and renamed Chi Lang II. Sentry was converted into a patrol vessel by the Sun Shipbuilding and Dry Dock Company, Chester, Pennsylvania, the minesweeping gear having been replaced by increased depth charge storage, and transferred at Philadelphia, Pa. in Aug. 1962 under MAP.

Serene and Shelter were transferred from the U.S. Navy to the Vietnamese Navy on 16 Jan. 1964. They are employed as escort patrol vessels and not as minesweepers.

PATROL VESSELS



VAN DON

1962, Vietnamese Navy, Official

4 Ex-U.S. PC Type

TAY KET HQ 05 (ex-Glaive, ex-U.S.S. PC 1143) 25 Sep. 1943
TUY DONG HQ 04 (ex-Trident, ex-U.S.S. PC 1146) 15 Nov. 1943
VAN DON HQ 06 (ex-U.S.S. Anacortes, PC 1569) 9 Dec. 1944
VAN KIEP HQ 02 (ex-Intrepide, ex-U.S.S. PC 1130) 10 Dec. 1942

Displacement: 280 tons standard, 380 tons normal (450 tons full load)
Dimensions: 170 (w.l.), 173½ (o.a.) × 23 × 10½ feet
Guns: 1—3 inch d.p.; 1—40 mm. AA.; 4—20 mm. AA.
A/S weapons: 2 D.C.; 2 R.L.
Machinery: Diesel, 2 shafts, B.H.P.: 2,800=19 kts.
Complement: 5 officers, 61 men

General
Built by Defoe S.B. Corp., Bay City, Mich., except Van Don by Leatham D. Smith S.B. Co. Launch dates above. Laid down on 17 Apr. 1943, 21 Sep. 1943, 26 Sep. 1944 and 8 Oct. 1942, respectively, and completed on 16 May 1944, 13 July 1944, 14 Mar. 1945 and 19 June 1943. Tay Ket, Tuy Dong and Van Kiep are former French escorteur cotiers transferred to the Vietnamese Navy in 1956. Van Don was transferred at Seattle, Washington, under MAP on 23 Nov. 1960. Dong Da (ex-French Ardent, ex-U.S.S. PC 1167) was stricken in 1961 and Chi Lang (ex-French Mousquet, P 633, ex-U.S.S. PC 1144) decommissioned in 1961, their names having been allocated to larger vessels.

MOTOR GUNBOATS



PHU DU

1963, Vietnamese Navy, Official

12+10 Ex-U.S. PGM Type

DINH HAI HQ 610
HOA LU HQ 608
KEO NGUA HQ 604
KIEN VANG HQ 603

KIM QUI HQ 605
MAY RUT HQ 606
MINH HOA HQ 602
NAM DU HQ 607

PHU DU HQ 600
TIEN MOI HQ 601
TO YEN HQ 609
TRUONG SA HQ 611

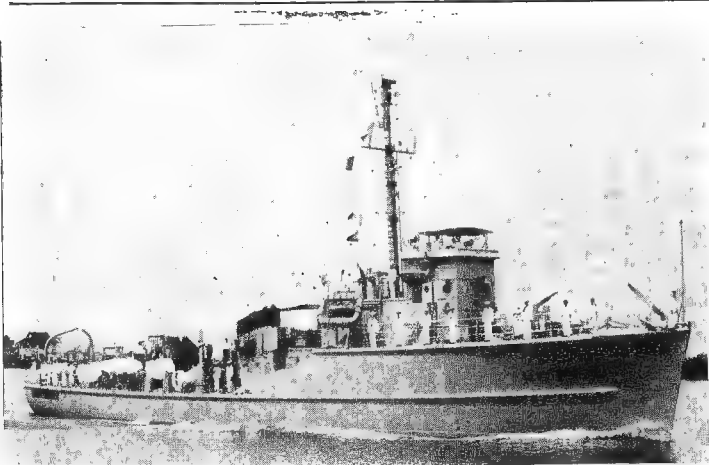
Displacement: 95 tons standard (143 tons full load)
Dimensions: 101 (w.l.), 110 (o.a.) × 21 × 6 feet
Guns: 1—40 mm. AA.; 2—20 mm. AA. (1 twin), 2 M.G.
Machinery: Diesels, 2 shafts, B.H.P.: 1,500=16 kts.

General
Built in the United States, the first ten, HQ 600-609, five by J. M. Martinac Shipbuilding Corporation, Tacoma, Washington (the last of which, PGM 63, was delivered in 1963), and five by Marinette Marine Corporation, Marinette, Wisconsin, for transfer to Vietnam under the Military Aid Programme. The U.S. hull numbers were PGM 59, 60, 61, 62, 63, 64, 65, 66, 67 and 68.

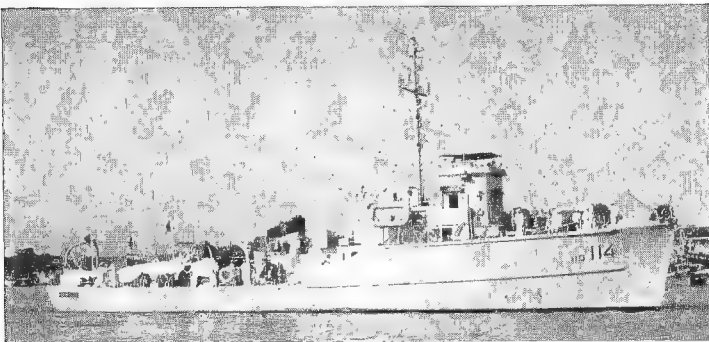
Transfer
Twelve more motor gunboats, U.S. hull numbers PGM 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81 and 82 have been or are being built in the United States for transfer to Viet Nam under MAP.

Disposals
The coastal patrol craft HQ 600 (ex-GC 8) and HQ 601 (ex-GC 7, ex-SC 1020) were removed from the effective list in 1960.

COASTAL MINESWEEPERS



CHU'O'NG-DU'O'NG II 1964, Vietnamese Navy, Official



HAM TU II 1960, Vietnamese Navy, Official

3 Ex-U.S. MSC Type

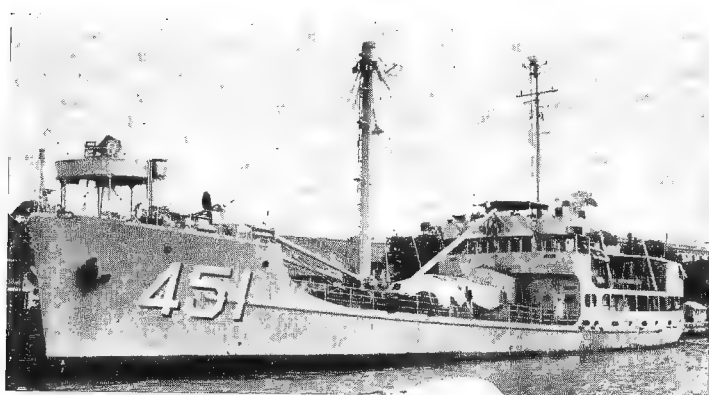
CHU'O'NG-DU'O'NG II HQ 115 (ex-**MSC 282**) **BACH DANG II HQ 116 (ex-**MSC 283**)**
HAM TU II HQ 114 (ex-MSC 281**)**

Displacement: 320 tons standard (370 tons full load)
Dimensions: 138 (pp.), 144 (o.a.) × 28 × 9 feet
Guns: 2—20 mm. AA.
Machinery: 2 diesels, 2 shafts. B.H.P.: 1,200=13 kts.

General
United States coastal motor minesweepers of the "Bluebird" class, non-magnetic type, of wooden construction, transferred under the Mutual Defense Assistance Programme in 1959 and 1960.

Disposals
Of the three coastal minesweepers of the ex-U.S. YMS type transferred from the French Navy on 11 Feb. 1954, *Ham Tu* HQ 111 (ex-*Aubergine*, ex-D 315, ex-YMS 28) was removed from the effective list in 1958. *Bach Dang*, HQ 113, (ex-*Belvedere*, ex-D 318, ex-YMS 78) in 1963, and *Chu'o'ng-Du'o'ng*, HQ 112 (ex-*Digitale*, ex-D 326, ex-YMS 83) in 1964.

SUPPLY VESSEL



HOA GIANG 1963, Vietnamese Navy, Official

1 Ex-U.S. FS Type

HOA GIANG HQ 451 (ex-*Diné An*, ex-*Ingenieur en Chef Girod*, ex-FS 24, ex-Governor Wright)

Displacement: 950 tons
Dimensions: 176 × 32½ × 10½ feet
Machinery: 2 G.M. diesels, 1 shaft. B.H.P.: 1,000=10 kts.
Complement: 55

General
Former French survey vessel (ex-U.S. Army freighter), sold to Vietnam in Dec. 1955. Rated as a light cargo ship (AKL).

LANDING SHIPS



CAM RANH 1963, Vietnamese Navy, Official

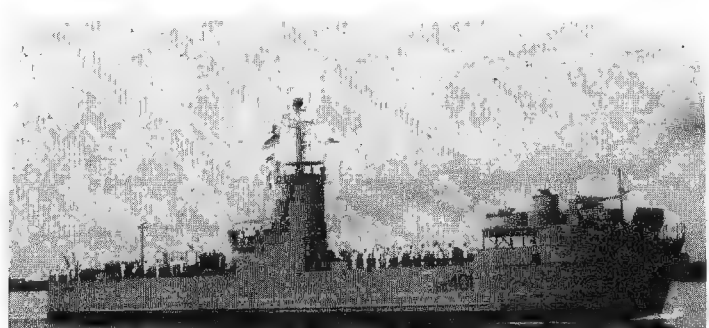
3 Ex-U.S. LST Type

CAM RANH HQ 500 (ex-U.S.S. *Marion County*, LST 975)
DA NANG HQ 501 (ex-U.S.S. *Maricopa County*, LST 938)
THI NAI HQ 502 (ex-U.S.S. *Cayuga County*, LST 529)

Displacement: 2,366 tons beaching (4,080 tons full load)
Dimensions: 316 (w.l.), 328 (o.a.) × 50 × 14 feet
Guns: 8—40 mm. AA.
Machinery: G.M. diesels, 2 shafts. B.H.P.: 1,700=11 kts.
Complement: 13 officers, 106 men

General
Former United States tank landing ships of the LCT type. *Cam Ranh* and *Da Nang* were built by the Bethlehem Steel Company, Hingham, Massachusetts: Laid down on 1 Dec. 1944 and 14 July 1944, launched on 6 Jan. 1945 and 15 Aug. 1944, and completed on 3 Feb. 1945 and 9 Sep. 1944, respectively. Transferred from the U.S. Navy to the Vietnamese Navy in June 1962 under the Military Aid Programme.

Thi Nai, built by Jeffersonville B. & M. Co., Jefferson, Ind., laid down on 8 Nov. 1943 launched on 17 Jan. 1944 and completed on 29 Feb. 1944 was transferred to Vietnam at Guam on 16 Dec. 1963.



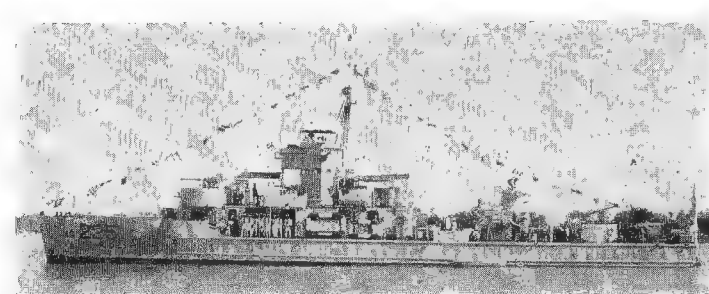
HAN GIANG 1965, Vietnamese Navy, Official

7 Ex-U.S. LSM Type

HAU GIANG HQ 406 (ex-**LSM 276**) **HUONG GIANG HQ 404 (ex-U.S.S. Oceanside, LSM 175)**
HAN GIANG HQ 401 (ex-**LSM 9012**)
HAT GIANG HQ 400 (ex-**LSM 9011**) **NINH GIANG HQ 403 (ex-**LSM 85**)**
LAM GIANG HQ 402 (ex-**LSM 226**) **TIEN GIANG HQ 405 (ex-**LSM 313**)**

Displacement: 743 tons beaching (1,095 tons full load)
Dimensions: 196½ (w.l.), 203½ (o.a.) × 34½ × 8½ feet
Guns: 2—40 mm. AA., 4—20 mm. AA.
Machinery: Diesel, 2 shafts. B.H.P.: 2,800=12 kts.
Complement: 59

General
Landing Ships Medium designed primarily to carry assault troops. First four were transferred to the French Navy for use in Indo-China, Jan. 1954. *LSM 9011*, *9012* transferred to Vietnamese Navy, Dec. 1955. *LSM 9014*, *9017*, *9018*, returned to U.S.A. in 1955. *Oceanside*, *LSM 175*, was transferred to Vietnam under MAP at Los Angeles, California, on 1 Aug. 1961, and *LSM 313* in 1962. *Hau Giang* (ex-*LSM 276*) was transferred from the U.S.A. to Vietnam and commissioned at Seattle, Washington, on 28 Mar. 1963.



NO THAN 1955, Vietnamese Navy, Official

4 Ex-U.S. LSSL Type

NO THAN HQ 225 (ex-*Framee*, ex-**LSSL 105**) **HQ 227**
LINH KIEM HQ 226 (ex-*Arquebuse*, ex-**LSSL 9022**) **HQ 228**

Displacement: 227 tons standard (383 tons full load)
Dimensions: 158 × 23½ × 5½ feet
Guns: 1—3 inch, 4—40 mm., 4—20 mm., 4 M.G.
Machinery: Diesel, 2 shafts. B.H.P.: 1,600=14 kts.

General
Of the LSSLs transferred from the U.S.A. in 1951 for service in Indo-China, *Arquebuse* was sold by France to Vietnam in 1955 and *Framee* was transferred from France to Vietnam in 1957. *HQ 227* and *HQ 228* were acquired from the U.S. Navy in Aug. and Sept. 1965.

Landing Ships—continued



HQ 329

1962, Vietnamese Navy, Official

5 Ex-U.S. LSIL Type

HQ 327 (ex-LSIL 9029) ex-U.S. 698
HQ 328 (ex-LSIL 9035) ex-U.S. 702

HQ 329 (ex-LSIL 9038) ex-U.S. 872
HQ 330 (ex-LSIL 9034) ex-U.S. 699
HQ 331 (ex-LSIL 9033) ex-U.S. 871

Displacement: 227 tons standard (383 tons full load)
Dimensions: 158×234×5½ feet
Guns: 1—3 inch, 1—40 mm., 2—20 mm., 4 M.G. and 4 Army mortars (2—3.1 inch, 2—60 mm.)
Machinery: Diesel, 2 Shafts. B.H.P.: 1,600=14.4 kts.

General
Former U.S. ships, 9030-9033 were ceded to France at Bremerton, Washington, on 2 Mar. 1951, and 9029 and 9034-39 in 1953 and stationed in Indo China. Similar to preceding class. LSIL 9030 (ex-715) was scrapped in 1955. The above vessels were transferred from France to Vietnam in 1956.

LANDING CRAFT



HQ 536

1962, Vietnamese Navy, Official

7 Ex-U.S. LCU Type

HQ 533 (ex-LCU 9076) ex-U.S. 1479
HQ 534 (ex-LCU 9089) ex-U.S. 1480
HQ 535 (ex-LCU 9086) ex-U.S. 1221

HQ 537 (ex-LCU 9887) ex-U.S. 1501
HQ 538 (ex-LCU) ex-U.S. 1502

Displacement: 180 tons light (360 tons full load)
Dimensions: 115 (w.l.), 119 (o.a.)×34×6 feet
Guns: 2—20 mm. AA.
Machinery: 3 diesels, 3 shafts. B.H.P.: 675=10 kts.

General
Built in the U.S.A. and transferred under MDAP. All LCT (7) type except HQ 535 (LCT (6) type). The landing ships and landing craft form "naval attack divisions" (Division navale d'assault) most of which have one LSSL or LSIL as flagships.

HQ 536 (ex-LCU 9074, ex-U.S.1595) HQ 539 (ex-LCU, ex-U.S. 1594)

Displacement: 160 tons light (320 tons full load)
Dimensions: 119 (o.a.)×33×5 feet
Guns: 2—20 mm. AA.
Machinery: 3 diesels, 3 shafts. B.H.P.: 675=10 kts.

General
Built under the offshore programme and transferred under the Military Aid Programme.

Other Types
There are also 32 landing craft (commandement) of the LCM Type, 10 light monitors, 52 LCVP, and 46 FOM. A total of 150 boats of these types were assigned to the River Force in June 1965.

AUXILIARY GUNBOATS

General
A Coastal Force of 500 motorised junks has been organised with United States assistance. This junk fleet is armed with .50 and .30 cal. machine guns. The Junk Force was established on 12 Apr. 1960, with 100 junks, 28 groups of junks having been formed by June 1962. Mass production of improved design junks was undertaken to control infiltration of South Vietnam coastal waters by North Vietnamese forces. New junks are fitted with armour plate and fibre glass to protect the wooden hulls against marine borers, and have diesels equal to speeds up to 15 knots. In June 1965 there were 513 junks crewed by nearly 4,000 men. The remaining sail junks are being disposed of.
The Coastal Force (ex-Junk Force) has become part of the Vietnamese Navy, and is no longer a para-military organisation (effective July 1965).

OILERS

HQ 470 (ex-L'Aulne, ex-U.S. YOG 80) HQ 471 (ex-YOG 33)
Displacement: 450 tons
Capacity: 700 tons deadweight

General
HQ 470 is a former U.S. oiler ceded to France on 2 Mar. 1950, and transferred from the French Navy to the Vietnamese Navy in 1956, and rated as a regional supply ship. HQ 471 was transferred from the U.S.A. to Vietnam in 1963.

WATER CARRIER

YW 152
General
Former United States self-propelled water barge transferred under the Military Aid Program.

TUGS

YTM 193 (ex-U.S.S. Sassacus) YTM 385 (ex-U.S.S. Wannalcnet)
General
Medium harbour tugs transferred to Vietnam by the U.S.A. in Jan. 1963. (The large harbour tug U.S.S. Oswegatchie, YTB 515, was transferred to Venezuela and not to Vietnam as originally intended.)

YTL 152 YTL 203 YTL 245 YTL 446 YTL 455
YTL 200 YTL 206 YTL 423 YTL 451 YTL 59)
General
Former United States small harbour tugs transferred from the U.S. Navy under the MAP. Nos. 423, 446, 451, 455 and 590 were transferred in Jan. 1963.
YTL 592 was not transferred as originally planned.

VIETNAM (NORTH)

Personnel

1965: 2,200 (200 officers and 2,000 men)

PATROL VESSELS

4 U.S.S.R. "S.O.I." Type

Displacement: 215 tons light, 250 tons normal
Dimensions: 138 (pp.), 147 (o.a.)×20×10 (max.) feet
Guns: 4—25 mm. (2 twin mountings)
A/S weapons: 4 ahead throwing rocket launchers, 2 D.C.T.
Machinery: 3 diesels. B.H.P.: 3,500=28 kts.
Complement: 30

General
Submarine chasers of the Soviet "S.O.I." class transferred to North Vietnam, two in 1960-61 and two in 1964-65. Four minesweepers are also reported.

MOTOR TORPEDO BOATS

3 U.S.S.R. "P 6" Type

Displacement: 50 tons standard
Dimensions: 82×16½×5½ feet
Guns: 2—25 mm. AA.
Tubes: 2—21 inch (single)
Machinery: Speed=40 kts.

General
Wooden hulled MTBs of the "P 6" class built in China and transferred in 1957.

9 U.S.S.R. "PA 4" Type

Displacement: 50 tons standard
Dimensions: 85½×20×6 feet
Guns: 4—25 mm. AA. (2 twin)
Machinery: Diesels B.H.P.: 2,000=42 kts.

General
Aluminium hulled MTBs of the Soviet "PA 4" class transferred from the U.S.S.R. in 1961
A fast patrol boat, PTF 1, is reported.

MOTOR GUNBOATS

22 U.S.S.R. "Swatow" Type

Displacement: 67 tons full load
Dimensions: 83½×20×6 feet
Guns: 2—37 mm., 2—20 mm.
A/S weapons: 8 depth charges
Machinery: 4 diesels. B.H.P.: 4,800=40 kts.
Complement: 17

General
Some 30 "Swatow" class motor gunboats built in China were transferred in 1958. Pennant numbers of 3 digits in a 600 series. Air strikes on 2 Mar. 1965 sank 3 to 5 "Swatow" class gunboats at Quang Khe.

Losses
In the U.S. action of 4 Aug. 1964 in the Gulf of Tonkin of the North Vietnamese motor torpedo boats, motor gunboats two were sunk and one damaged. In the U.S. action of 5 Aug. 1964 of the North Vietnamese flotilla of motor torpedo boats and motor gunboats eight were destroyed, six severely damaged, ten moderately damaged and four lightly damaged. In addition one vessel of the PC type was beached at Quang Khe.

Revised casualty estimates for 2 to 5 Aug. 1964 U.S. surface and air actions indicate 11 MGB/MTBs destroyed and 22 MGB/MTBs damaged. Some lost boats are reported to have been replaced by new units. 20 motor gunboats and torpedo boats were reported transferred by China to North Vietnam in Sep. 1964.

A 60 ft. patrol boat was sunk by U.S. Navy aircraft on 26 Apr. 1965. Three patrol boats were destroyed by air attacks near Quang Khe on 2 June 1965, and four others heavily damaged.

YUGOSLAVIA

Administration

Commander-in-Chief, Yugoslav Navy:
Admiral Mate Jerkovic.

Commander-in-Chief of the Fleet:
Vice-Admiral Bogdan Pecotic.

Naval, Military and Air Attaché in London:
Colonel B. Kobali.

Assistant Naval & Military Attaché, London:
Commander A. Mirkovik:

Naval and Military Attaché in Washington:
Colonel Jozе Svigelj.

Personnel

1965: 27,000 officers and ratings

Mercantile Marine

Lloyd's Register of Shipping:
350 vessels of 966,521 tons

DESTROYERS (Razarac)



SPLIT

1959, Yugoslavian Navy, Official

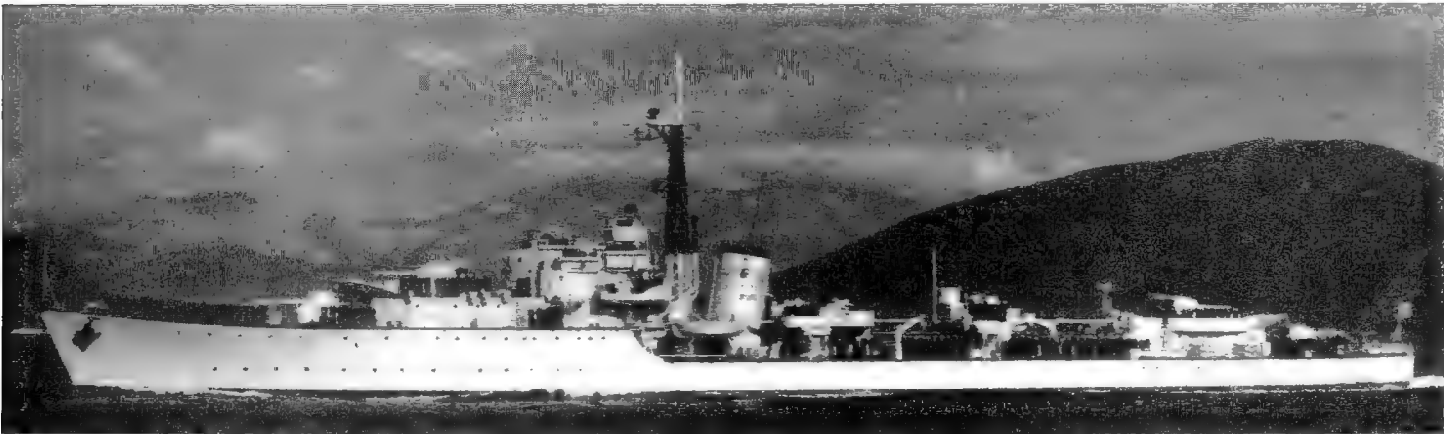
I "Split" Class

SPLIT (ex-Spalato, ex-Split)

Pennant No.: 11
Builders: Brodogradiliste "3.Maj", Rijeka
Laid down: July 1939
Launched: 1940
Completed: 4 July 1958

Displacement: 2,400 tons standard (3,000 tons full load)
Dimensions: 376½ × 36½ × 12½ feet
Guns: 4—5 inch, 12—40 mm. AA.
Tubes: 5—21 inch
A/S weapons: 2 squids, 6 D.C.T., 2 D.C.R.
Machinery: Geared turbines. 2 shafts. S.H.P.: 50,000=31.5 kts. sea speed
Boilers: 2
Oil fuel: 590 tons

General
The original ship was laid down by Chantieres de Loire, Nantes, in 1939, at Split Shipyard. Launched in 1940. Carried out extensive trials in 1958. Ready for operational service in 1959. The original design provided for an armament of 5—5.5 inch guns, 10—40 mm. AA. guns, and 6—21.7 inch torpedo tubes (tripled), but the plans were subsequently modified. The shaft horse power was also reported variously as 60,000 and 70,000, equal to 38 kts. (max.). Mine capacity: 40.



KOTOR

1962, Yugoslavian Navy, Official

2 Ex-British "W" Class

KOTOR (ex-Kempenfelt, ex-Valentine; Leader)
PULA (ex-Wager)

Name:	Kotor	Pula
Pennant No.:	21	22
Builders:	John Brown & Co. Ltd., Clydebank	John Brown & Co. Ltd., Clydebank
Laid down:	24 June 1942	20 Nov. 1942
Launched:	8 May 1943	1 Nov. 1943
Completed:	25 Oct. 1943	14 Apr. 1944
Displacement:	1,730 tons standard (2,525 tons full load)	
Dimensions:	339½ (pp.), 362½ (o.a.) × 35½ × 17 feet	
Guns:	4—4.7 inch, 3—40 mm. AA. (1—40 mm. in Kotor)	
A/S weapons:	4 D.C.T.	
Tubes:	8—21 inch	
Machinery:	Parsons geared turbines. S.H.P.: 40,000=36.75 kts. (designed), 31.25 kts. sea speed	
Boilers:	2 Admiralty 3-drum type	
Oil fuel:	580 tons	
Radius:	2,800 miles at 20 kts.	
Complement:	186	



PULA

1962, Yugoslavian Navy, Official

General
Former British destroyers of the "W" class. Purchased during 1956 and towed to Yugoslavia in Oct. 1956 to be refitted in a northern Yugoslavian shipyard. Kotor was re-commissioned on 10 Sep. 1959 and Pula by the end of 1959.

Class
Sister ships of Wessex, renamed Jan van Riebeeck, and Whelp, renamed Simon van der Stel in South African Navy and original sister ships of Wakeful, Whirlwind and Wizard in the British Navy, and Wrangler, in the South African Navy converted to frigates, see earlier pages.

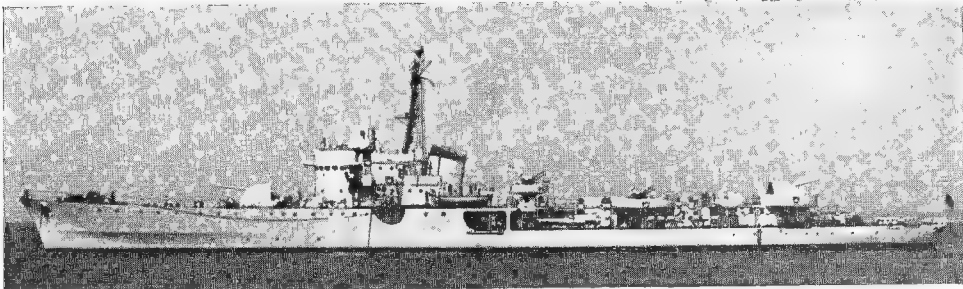
Appearance
One director on bridge not so large as in later classes. Tall foremast in both. Single Bofors mounting high up abaft funnel in superfiring position. A starboard broadside view of Pula appears in the 1957-58 edition, and another photograph of Kotor in the 1957-58 to 1961-62 editions.

FAST FRIGATES (Light Destroyer Type)

3 Ex-Italian Type

	BIOKOVO (ex-Aliseo)	TRIGLAV (ex-Indomito)
Name:	Biokovo	Triglav
No.:	52	51
Builders:	Navalmeccanica, Castellammare	Cantiere del Tirreno, Riva Trigoso
Laid down:	16 Sep. 1941	10 Jan. 1942
Launched:	20 Sep. 1942	6 July 1943
Completed:	28 Feb. 1943	4 Aug. 1943

Displacement:	1,204 tons standard (1,709 tons full load)
Dimensions:	270½ (pp.), 293 (o.a.) × 32½ × 9½ feet
Guns:	3—3.9 inch, 47 cal., d.p., 11—20 mm. AA. (Biokovo: 2—3.9 inch, 10—20 mm. AA.) 4 D.C.T.
Tubes:	4—18 inch (2 twin)
Machinery:	2 Tosi geared turbines. 2 shafts. S.H.P.: 16 000=26 kts.



BIOKOVO

1957, Yugoslav Navy, Official

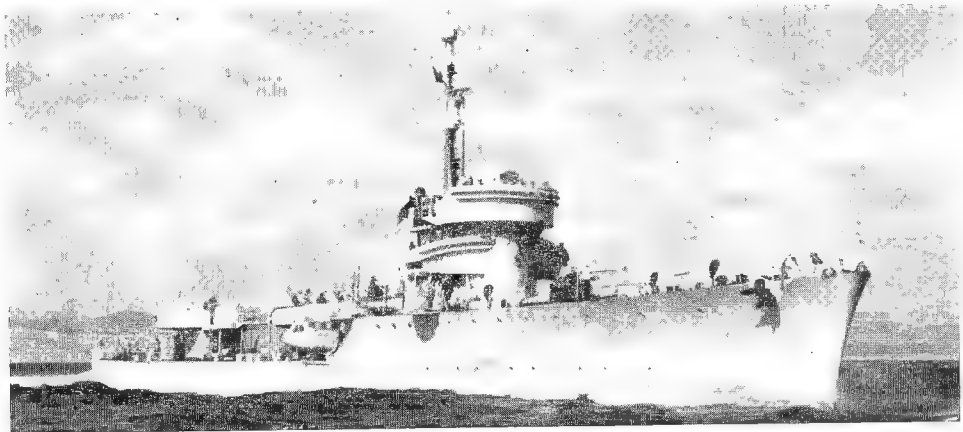
Boilers:	2, of 3-drum type
Oil fuel:	430 tons
Radius:	3,500 miles at 15 kts.
Complement:	175

General
Ex-Italian large oceangoing torpedo boats or escort destroyers. A photograph of Triglav appears in the 1954-55 to 1957-58 editions.

UČKA (ex-Balestra)

No.:	54
Builders:	C.N. Quarnaro, Fiume
Laid down:	5 Sep. 1942
Launched:	1943
Completed:	1949
Displacement:	797 tons standard (1,033 tons full load)
Dimensions:	265½ × 27½ × 9 feet
Guns:	2—3.9 inch (100 mm., 47 cal.) AA., 10—20 mm., 70 cal. AA., 6—18 inch (2 triple).
Tubes:	2 Tosi geared turbines. 2 shafts.
Machinery:	S.H.P.: 22,000=31.5 kts.
Boilers:	2, of 3-drum type
Oil fuel:	200 tons
Radius:	1,800 miles at 15 kts.
Complement:	150

General
Former Italian oceangoing torpedo boat or small destroyer. The name *Učka* means the Monte Maggiore near Abbazia. The ship was damaged on the slip by bombs on 20 Feb. 1945 (she was named TA 47 by the Germans) but was rebuilt and completed by Yugoslavia.
Disposal
Durmitor (ex-Arlete) was removed from the active list in 1963.



UCKA

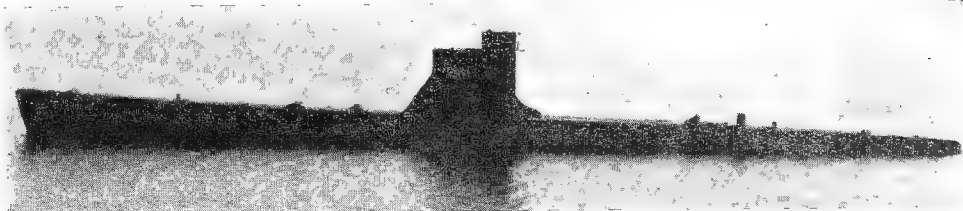
Yugoslav Navy, Official

SUBMARINES (Podmornice)

"Sutjeska" Class

	SUTJESKA	NERETVA	ULJANIK
Displacement:	550 tons standard		
Dimensions:	197 × 21½ × 16 feet		
Tubes:	6—21 inch		
Machinery:	Diesels, electric motors. H.P.: 1,800		
Complement:	38		

General
Sutjeska was launched on 28 Sep. 1958 at Uljanik Shipyard, Pula. The first submarine to be built in a Yugoslav yard. Commissioned on 16 Sep. 1960.
Disposal
The old *Tara* (ex-*Nebojsa*) was scrapped in 1958.



SUTJESKA

1963, Yugoslav Navy, Official

"Sava" Class

	SAVA (ex-Tritone) Pennant No. 802.
Displacement:	747 tons standard, 905 tons surface, 1,068 tons submerged
Dimensions:	207½ × 22½ × 16 feet
Guns:	1—3.9 inch, 2—20 mm. AA.
Tubes:	6—21 inch
Machinery:	H.P.: 2,400—16 kts. (surface), 8 kts. (submerged)
Radius:	12,000 miles at 8½ kts.
Complement:	55

General
Formerly Italian. Built by C.R.D.A. Monfalcone. Laid down on 12 May, 1941. Launched on 3 Jan. 1942. Completed on 10 Oct. 1942. Sunk on 19 Jan. 1943. Salvaged.



SAVA

1959, Yugoslav Navy, Official

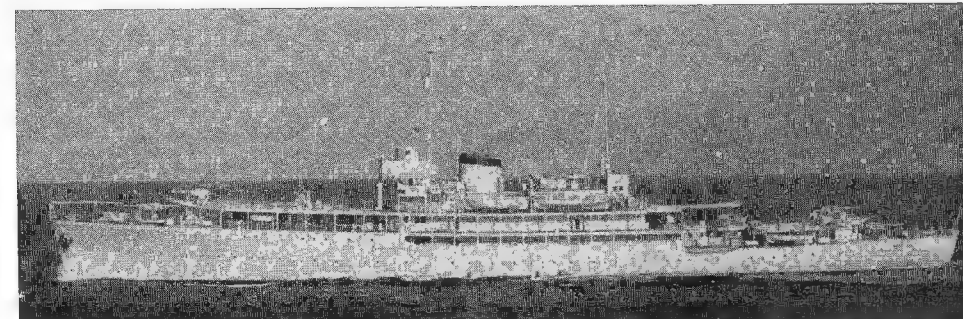
MINELAYER Training Ship (Skolski Brodovi)

Ex-Italian Type

M 11 GALEB (ex-Kuchuck, ex-Ramb 111)

Displacement:	5,182 tons
Measurement:	3,667 tons gross
Dimensions:	385 × 51 × 18 feet
Guns:	4—3.5 inch, 4—40 mm., 24—20 mm. (quadruple)
Machinery:	Diesel motors. 2 shafts=17 kts.

General
Formerly Italian. Launched in 1938. Refloated and completed in 1952. Adapted for minelaying. Now serving as a training ship. Also serves as the Presidential Yacht.
Disposal
The minelayer (*Minopolagacil*) *Zelengora*, M 21 (ex-*Orao*, ex-M 97)—while in Italian hands named *Vergada*—was scrapped in 1962.



GALEB

1959, Yugoslav Navy, Official

PATROL VESSELS

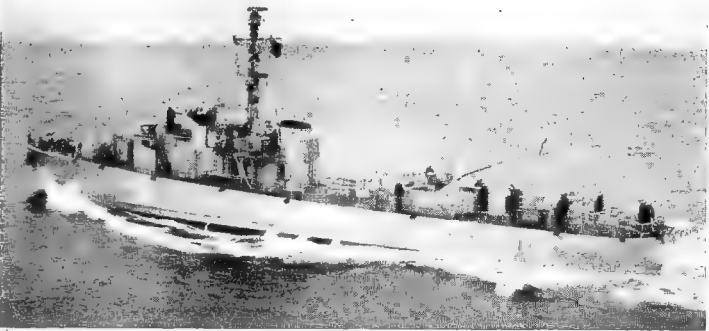


MORNAR 1962, Yugoslavian Navy, Official

I Yugoslavian Built

MORNAR
Displacement: 330 tons standard (400 tons full load)
Dimensions: 170 x 23 x 6½ feet
Guns: 2—3 inch, 2—40 mm. AA., 2—20 mm. AA.
A/S weapons: 2 rocket launchers, Mark 22
Machinery: 4 diesels. B.H.P.: 3,240 18 kts.
Radius: 3,000 miles at 12 kts.
Complement: 60

General
Completed on 10 Sep. 1959. PBR 551. Design is basically similar to that of PBR 581.



PBR 581 Yugoslavian Navy, Official

I French-Built U.S. Offshore Type

PBR 581 (ex-P 6)
Displacement: 325 tons standard (400 tons full load)
Dimensions: 170 (pp.) x 23 x 6½ feet
Guns: 2—40 mm. Bofors AA., 2—20 mm. AA.
A/S weapons: 1 Hedgehog. 4 D.C.T., 2 D.C. racks
Machinery: 4 Pielstick SEMT diesels. B.H.P.: 3,240 = 18.7 kts.
Radius: 3,000 miles at 12 kts., 2,000 miles at 15 kts.
Complement: 62

General
U.S.A. offshore procurement. Ordered in France. Built by F. C. Mediterranee (Graville). Launched on 1 June, 1954. Transferred to Yugoslavia in 1956.

Disposals
The ex-Austrian torpedo boat (torpilljarka) *Cer*, 92 (ex-T 5, ex-T 87) was scrapped in 1962. Her sister ship *Galesnica*, 91 (ex-T 1, ex-T 76) was officially stricken from the list in Oct. 1959.

COASTAL MINESWEEPERS



SMELI 1958, Yugoslavian Navy, Official

3 French-Built U.S. Offshore Type, I Yugoslav

HRABRI M 151 (ex-D 25) **SMELI M 152 (ex-D 26)**
SLOBODNI M 153 (ex-D 27) **SNAZNI M 154**

Displacement: 365 tons standard (424 tons full load)
Dimensions: 140 (pp.), 152 (o.a.) x 28 x 8½ feet
Guns: 1—40 mm. Bofors AA., 1—20 mm. Oerlikon AA.
Machinery: SIGMA free piston generators. 2 shafts. B.H.P.: 2,000 = 15 kts.
Oil fuel: 48 tons
Radius: 3,000 miles at 15 kts.
Complement: 40

General
First three were built in France by A. Normand as United States "off-shore" orders, launched on 27 Feb. 1956, 26 May 1956 and 26 June 1956, respectively, and allocated to the Yugoslav Navy at Cherbourg in Sep. 1957. *Snazni* was built in Yugoslavia in 1960:

MOTOR TORPEDO BOATS (Torpedni Čamci)



MTB 174 1962, Yugoslavian Navy, Official



MTB 119 Yugoslavian Navy Official

96 Type "108"

102	115	120	125	157	164	170
103	116	122	126	159	165	174
108	119	124	127	162	167	199

Displacement: 60 tons
Dimensions: 69 (pp.), 78 (o.a.) x 21½ x 7 feet
Guns: 1—40 mm. AA., 2—12 7 mm. MG.
Tubes: 2
Machinery: 3 Packard petrol motors. Speed: 40 kts.
Complement: 14

General
The total number of motor torpedo boats is reported to be nearly 100. Under future programmes it is planned to raise the total to 110.

Transfer
Two of this class were transferred to Ethiopia in 1960 and renamed *Barracuda*, P 22, and *Shark*, P 21.

7 American Type

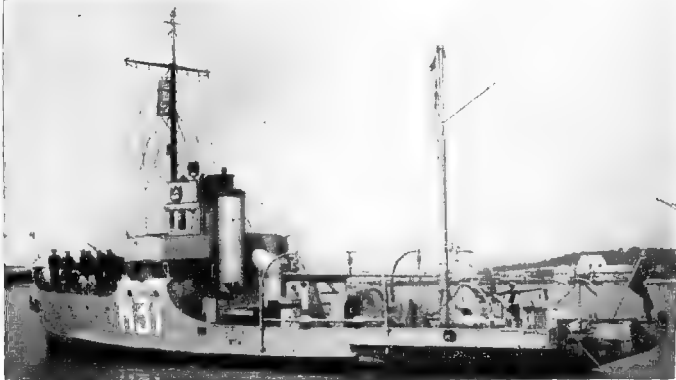
MT 1 (ex-PT 201)	MT 3 (ex-PT 207)	MT 5 (ex-PT 209)
MT 2 (ex-PT 204)	MT 4 (ex-PT 208)	MT 6 (ex-PT 211)
		MT 7 (ex-PT 213)

Displacement: 56 tons full load
Dimensions: 78 x 20½ x 5½ feet
Guns: 1—40 mm. AA.
Tubes: 4
Machinery: 3 Packard motors. 3 shafts. H.P.: 4,500 = 35 kts.
Complement: 17

General
Built by Higgins. All launched in 1942. Transferred from the U.S. Navy in 1945. *MT 8 (ex-PT 217)* was scrapped in 1955, and the remainder will be in the near future.

Disposals
The German type motor torpedo boats 391 (ex-Durmitor) and 392 (ex-Kajmakalan) were removed from the effective list in 1963.

MINING TENDERS (Tenderi minopolagaci)



M 31 1955, Official

3 Yarrow Class

M 31 (ex-Meljine)	M 32	M 33 (ex-Mljet)
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Displacement: 130 tons standard
Dimensions: 174 x 26½ x 13 feet
Guns: 1—47 mm.
Machinery: Triple expansion. 2 shafts. H.P.: 280 = 9 kts.
Complement: 30

General
Built by Yarrow's Adriatic Yard, Kraljevica. Launched in 1931. While in Italian hands *M 31* and *M 33* were named *Salto* and *Meleda*, respectively.

PATROL BOATS



PBR 512 1959, Yugoslavian Navy, Official

"Kraljevica" Class Submarine Chasers
16 PBR 501-508 and 509-516 Types

PBR 509 PBR 510 PBR 511 PBR 512 PBR 513 PBR 514 PBR 515 PBR 516

General This second batch of submarine chasers launched in 1957-59 are an improvement on the PBR 501-508 series below, but of similar basic particulars.



PBR 504 1955, Official

PBR 501 PBR 502 PBR 503 PBR 504 PBR 505 PBR 506 PBR 507 PBR 508

Displacement: 190 tons standard (245 tons full load)
Dimensions: 134½ x 20½ x 7 feet
Guns: 1—3 inch, 1—40 mm. AA., 4—20 mm. AA.
A/S weapons: D.C.
Machinery: Diesel. 2 shafts. B.H.P.: 3,300 = 20 kts.
Oil fuel: 15 tons
Radius: 1,500 miles at 12 kts.
Complement: 54

General These submarine chasers of the "500" class were launched from 1953 to 1956.

SALVAGE VESSEL (Brod za Spasavanje)

PS 11 SPASILAC
Displacement: 740 tons
Dimensions: 174 x 26½ x 13 feet
Machinery: Triple expansion. H.P.: 2,000 = 15 kts.

General Built by Howaldt, Kiel. Launched in 1929. Name means "Salvador." While in Italian hands she was called *Intangibile*.
Disposal of Submarine Depot Ship

The submarine depot ship (*Matica za podmornice*) *Miner*, PB 21 (ex-*Sitnica*, ex-*Najade*)—while in Italian hands named *Curzola*—was scrapped in 1962.

RIVER PATROL VESSEL

KRAJINA (ex-*Dragor*)
Displacement: 250 tons
Dimensions: 164 x 26½ x 3½ feet
Machinery: H.P.: 480 = 10 kts.

General Both launched in 1923. This vessel formerly served as the Royal Yacht on the Danube.

RIVER GUNBOATS

2 RPC 200 Type

Displacement: 30 tons
Guns: 2—3 inch in turrets
Machinery: Speed = 15 kts.

General Both launched in 1945 for the Donau Flotilla. (The river monitor *Sava* (ex-*Bodrag*) was scrapped in 1962).

YACHT (Jahta)

ISTRANKA (ex-*Vilax-Dalmata*)
Displacement: 230 tons
Machinery: H.P.: 325 = 12 kts.

General Istranka means Nymph. Named *Fata* whilst in Italian hands during 1941-45.

INSHORE MINESWEEPERS (Minolovci)



M 109 1954, Official

18 Type 101

M 101 M 103 M 105 M 107 M 109 M 111 M 113 M 115 M 120
M 102 M 104 M 106 M 108 M 110 M 112 M 114 M 116 M 140

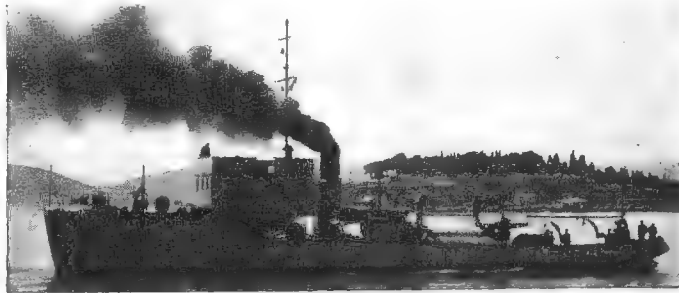
Displacement: 90 tons standard (95 tons full load)
Dimensions: 82 x 19½ x 6½ feet
Guns: 1—40 mm., 1—20 mm.
Machinery: Diesel. B.H.P.: 135-175 = 12 kts.

General Built during 1950-56 in Yugoslav shipyards. Reported to vary in detail. Some used for patrol duties.

4 U.S. MSI Type

MSI 98 MSI 99 MSI 100 MSI 101

General The above are the U.S. Navy hull numbers of boats building for transfer to Yugoslavia under the Military Aid Program.



M 301 1955, Official

6 Ex-Italian Type 301

ML 301 (ex-RD 6) ML 303 (ex-RD 21) ML 305 (ex-RD 27)
ML 302 (ex-RD 16) ML 304 (ex-RD 25) ML 306 (ex-RD 28)

Displacement: 151 to 156 tons
Dimensions: 116 x 19½ x 6 feet
Guns: 1—3 inch AA.
Machinery: Triple expansion. I.H.P.: 750 = 10 kts.

General Formerly Italian. Launched in 1917-19. ML 307 (ex-RD 29) was removed from the effective list in 1955.

RIVER MINESWEEPERS

14 RML 300 Type

M 301 M 303 M 305 M 307 M 309 M 311 M 313
M 302 M 304 M 306 M 308 M 310 M 312 M 314

Displacement: 38 tons
Guns: 1—20 mm.
Machinery: Speed = 12 kts.

General All these boats were launched in 1951-53. A photograph of M 313 appears in the 1956-57 and 1957-58 editions.

DESPATCH VESSEL

JADRANKA(ex-Bjeli Orao)
Displacement: 567 tons standard (660 tons full load)
Dimensions: 197 (pp). 213½ (o.g.) x 26½ x 9½ feet
Guns: 2—40 mm. AA., 2 M.G.
Machinery: 2 Sulzer diesels. B.H.P.: 1,900 = 18 kts.

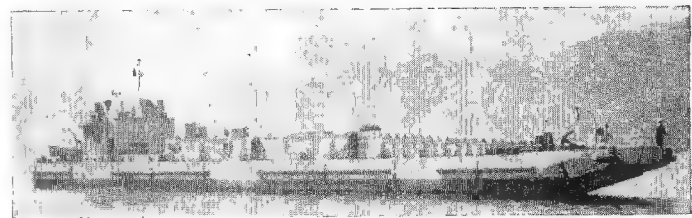
General Built by C. R. dell'Adriatico, San Marco, Trieste; launched on 3 June 1939. Was used as Admiralty yacht and yacht of Marshall Tito. While in Italian hands was named *Alba* for some days only, then *Zagabria*. A photograph of *Jadranka* appears in the 1955-56 to 1957-58 editions.

SAIL TRAINING SHIP

JADRAN
Displacement: 720 tons
Dimensions: 190 x 29½ x 13½ feet
Sail area: 8,600 sq. ft.
Machinery: 1 Linke-Hofman Diesel. H.P.: 375 = 8 kts.

General Launched in 1932. Accommodation for 150 Cadets. Name means "Adriatic." While in Italian hands she was named *Marco Polo*. A photograph appears in the 1954-55 to 1957-58 editions.

LANDING CRAFT



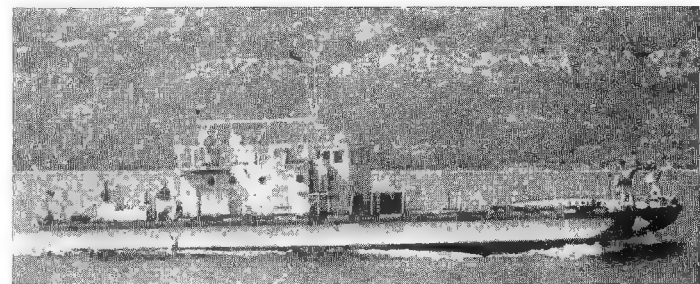
D 230 1959, courtesy B. Hinchcliffe, Esq.

D 230 Displacement: circa 500 tons

General Capable of carrying at least two, possibly three of the heaviest tanks. Unlike other tank landing craft in that the lower part only of the stern drops to form a ramp down which the tanks go ashore, underneath the prow, which is rigid.

New Construction

General New construction includes some landing craft of LCA, LCT and Siebel-ferry types.

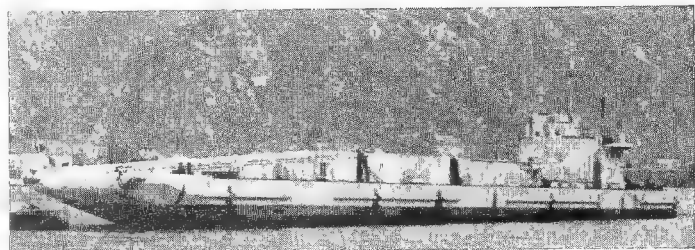


Catamaran type 1959, courtesy B. Hinchcliffe, Esq.

Catamaran Type

General Displacement: circa 50 tons

A smaller craft consisting of two pontoons some feet apart, secured to each other by cross-girders on which stand the bridge and cabins, etc. This vessel appears to be capable of carrying one medium tank, to be put ashore by two bridge members which can be seen quite clearly, folded back on the decks.



D 221 1959, Yugoslav Navy, Official

DTK 221

Displacement: 410 tons
Dimensions: 144½ x 19½ x 7 feet
Guns: 1—20 mm. AA., 2—12 7 mm.
Machinery: Speed 10 kts.
Complement: 15



D 219 1959, Yugoslav Navy, Official

D 206 (ex-MZ 713)

Displacement: 225 tons and 239 tons
Guns: 1—20 mm. AA., 2 M.G. AA.
Machinery: Speed 11 kts.

General Ex-Italian landing craft. Launched in 1942. Capable of carrying three tanks.

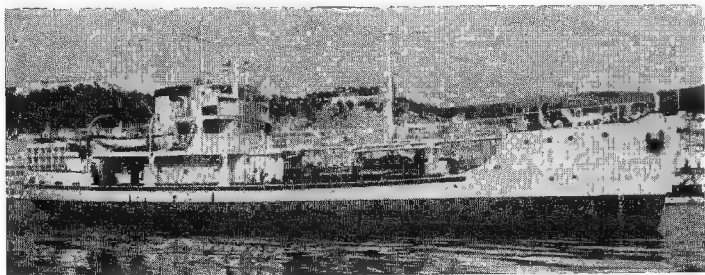
D 203

Displacement: 220 tons
Guns: 1—3.4 inch (88 mm.), 2—20 mm. AA.
Machinery: Speed 10 kts.

General Ex-German landing craft. Two landing craft were launched in 1956.

D 204

OILERS



PN 17 1962, Yugoslav Navy, Official

PN 17 Displacement: 420 tons standard (650 tons full load)
Dimensions: 141½ x 22½ x 13½ feet
Machinery: B.H.P.: 300=7 kts.

4 PN 13 Type

PN 13 (ex-Lovcer) Displacement: 560 to 695 tons
Machinery: Speed 8.5 kts.

General PV 13 (ex-Lovcer) was launched in 1932. Small oiler for fleet servicing and freighting.

ULJESURA Displacement: 250 tons

KIT

TRANSPORTS

2 PT 71 Type

Displacement: 310 tons standard (428 tons full load)
Dimensions: 141½ x 22½ x 16 feet
Machinery: B.H.P.: 300=7 kts.

General All the above particulars were officially furnished by the Yugoslav Navy

Disposal The transport *Tunj*, PT 21 (ex-Krk, ex-Kt. 6) was removed from the effective list in 1963, it is officially stated.

WATER CARRIERS (Vodonosci)

PV 6 PV 11 PV 12
General There are 8 water carriers of various types. Some are of new construction. Also PT 12 and PO 54

TUGS (Remorkeri)

PR 52 (ex-San Remo) Displacement: 170 tons
Machinery: H.P.: 350=9 kts.

General Former Italian tug and multi-purpose vessel. Launched in 1937.

PR 58 (ex-Molara) Displacement: 118 tons
Machinery: H.P.: 250=8 kts.

General Former Italian tug. Launched in 1937, now used as general transport and towing vessel.

PR 51 (ex-Porto Conte) Displacement: 226 tons

General Former Italian tug. Launched in 1936. A photograph appears in the 1951-52 to 1957-58 editions.

PR 55 (ex-Snazi) Displacement: 100 tons
Machinery: H.P.: 300=10 kts.

General Launched in 1917. Name means "Strong." The Italian name was *Resistance*.

PR 54 (ex-Ustrajni) Displacement: 160 tons
Machinery: H.P.: 250=9 kts.
General Launched in 1917. Name means "Durable." The Italian name was *Duradero*.

LR 11 (ex-Basiluzzo) Displacement: 108 tons
Machinery: H.P.: 130=8 kts.

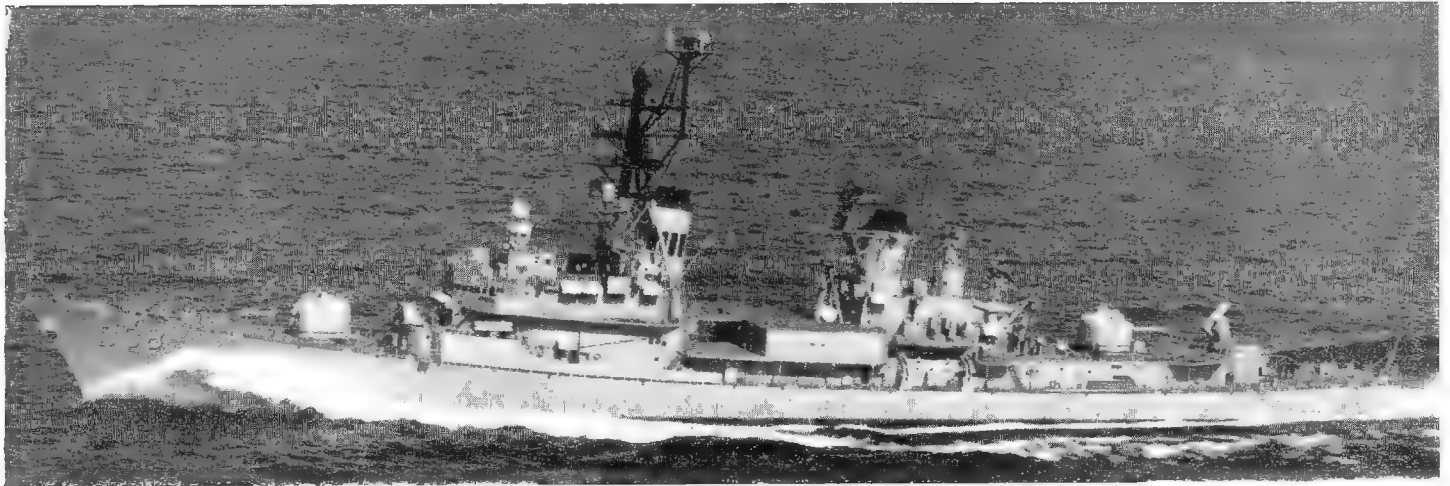
General Former Italian tug. Launched in 1915.

PP 1 (ex-Marljivi) Displacement: 130 tons
Machinery: H.P.: 300=12 kts.

General Very old tug. Launched in 1898. Name means "Industrious."

RRM 11 (ex-Fruska Gora) General River tug. General utility craft and service personnel transport.

ADDENDA



PERTH (Australia, new guided missile armed destroyer, page 12)

1965, Courtesy Commanding Officer

AUSTRALIA

Guided Missile Armed Destroyers

Page 12.
Perth (see photograph above) ready for operational service.

Submarines

Page 16.
Oxley launched on 24 Sep. 1965 at Scotts' Greenock Shipyard, Scotland.

CANADA

Submarines

Page 37.
Ojibwa commissioned on 23 Sep. 1965 at H.M. Dockyard, Chatham.
Onondaga launched on 25 Sep. 1965 at H.M. Dockyard, Chatham.

Weather Oceanographic Ships

Page 41.
Two new Coast Guard ships named Vancouver (launched on 29 June 1965) and Quadra.

FRANCE

Assault Landing Ships

Page 91.
A second assault landing ship is to be built, sister ship of Ouragan.

Maintenance Ships

Page 96.
Garonne commissioned for active service on 1 Sep. 1965 for Pacific Experimental Station.

KENYA

Coastal Patrol Craft

Page 168.
Simba launched at Vosper's Portsmouth Shipyard, England on 9 Sep. 1965.

ITALY

Guided Missile Cruisers

Page 140.
Italia will not be built, it is reported. In her place Trieste will be ordered, the third type of guided missile cruisers.

Patrol Vessels

Page 148.
Sentinella F 598 renamed and renumbered Fulmine P 449.

Motor Gunboats

Page 150.
MC 590, MC 591, MC 592, MC 593 named Freccia, Saetta, Dardo, Strale, respectively.
MC 490, MC 491, MC 492 named Folgore, Lampo, Baleno respectively.

SPAIN

New Programme

Page 226.
Thesis Bay LPH 6, Amphibious Assault Ship (former Assault Helicopter Aircraft Carrier CVHA 1, converted Escort Aircraft Carrier CVE 90) being acquired from the United States (House Armed Service Committee approved the loan for five years in 1965).

U.S.S.R.

Frigates

Page 432.
Three new frigates of the "Mirka" class observed in the Baltic (see photograph of No. 166 above).

Submarines

Page 433.
35 nuclear powered submarines reported to be operational. Long range submarines, some nuclear powered and carrying missiles, reported to be on station in the Pacific, in the Atlantic, off America, off China and off Australia.

Trawlers

Page 440.
Estimated 500 electronic intelligence trawlers maintaining constant patrol in northern waters.



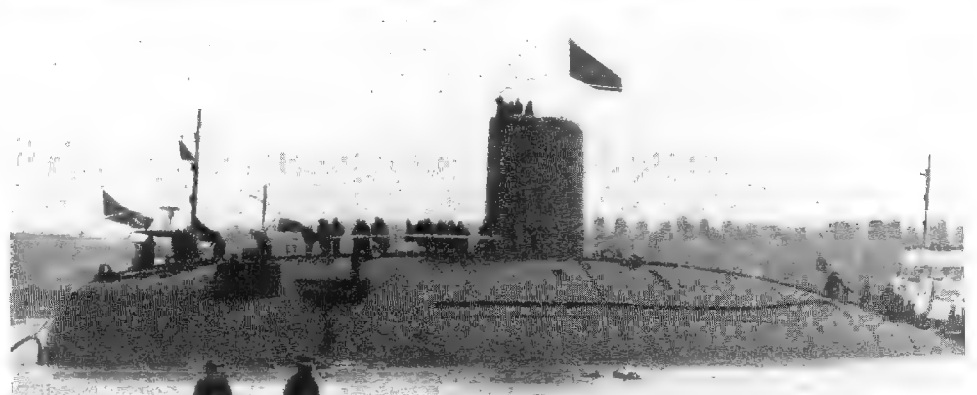
NIGERIA (Nigeria, new frigate, page 192)

Sep. 1965, Wright & Logan



"Mirka" Class No. 166 (U.S.S.R., new frigate, page 432)

1965



WARSPITE (United Kingdom, third nuclear powered submarine, page 288)

25 Sep. 1965, Courtesy Vickers Limited, Builders



NIKOLAI ZUBOV (U.S.S.R., new oceanographic research ship, page 443)

1965

ALL THE WORLD'S FIGHTING SHIPS

	Heavy Aircraft Carriers	Large Aircraft Carriers	Light Aircraft Carriers	Escort Carriers, Helicopter Carriers, Command Carriers	Command Ships	Cruisers	Leaders, Large Destroyers, Frigates (DLG)	Destroyers	Destroyer Escorts, Frigates, Escorts (and APD)	Nuclear Submarines	Submarines	Corvettes (including PCE)	Patrol Vessels, Submarine Chasers (PC)	Motor Torpedo Boats, Motor Gunboats, Fast Patrol Boats	Fleet Minelayers, Fast Minelayers, Mine Support Ships	Coastal Minelayers	Seaplane Tenders
ARGENTINA			1			3		9	4		2	3		4			
AUSTRALIA			1	1				7	10								
BELGIUM... ..												4					
BRAZIL			1			2		11	6		4	10					
BULGARIA								1	2		3		4	70			
BURMA									1			1	4	5			
CANADA... ..			1					3	34		2						
CEYLON									1								
CHILE						2		4	2		2	3	3	4			
CHINA								4	16		30		30	220			
COLOMBIA								3	2								
CUBA									4			2	12	24			
DENMARK									5		4	5		14		4	
DOMINICAN R....								2	3			5	5				
ECUADOR									3			2					
FINLAND... ..									3				4	17		2	
FRANCE			3	1		2		18	32		19		15				
GERMANY (E)									4				41	52			
GERMANY (W)								10	24		11	7		47	3		
GREECE								8	4		3		13			2	
INDIA			1			2		3	14								
INDONESIA						1		7	11		12	3	12	64			
IRAN									1			3					
IRAQ													3	12			
ISRAEL								2	1		4		1	12			
ITALY						3	4	4	11		5	22	8	13			
JAPAN								20	28		7		20	10		2	
KOREA (N)													15	21			
KOREA (S)								1	8			9	6	2			
MALAYSIA									1					4			
MEXICO									8			25	5				
NETHERLANDS...			1			2		12	6		5	6			1		
NEW ZEALAND						1			6				1				
NORWAY								3	5		5		1	26		5	
PAKISTAN						1		5	2		1						
PARAGUAY																	
PERU						2		2	5		4	2					
PHILIPPINES												8	6				
POLAND								5			8		8	40			
PORTUGAL								2	10		3	1	14				
RUMANIA								2			12		3	8		1	
SOUTH AFRICA								2	6								
SPAIN				1		3		20	8		5	6	2	3	6		
SWEDEN... ..						1		8	12		21		2	37	1	10	
TAIWAN								5	6			5	25	50		1	
THAILAND									5				14			2	
TURKEY								8			10	9	3		1	6	
†U.A.R.								6	3		9	3		47			
UNITED KINGDOM ...		3	2	2		5	4	20	65	2	42			8	1	6	
URUGUAY									3				3				
U.S.A.	11	23	3	20	2	40	30	360	316	60	140	11	82	14	15		7
§U.S.S.R.						22		150	100	35	390		250	900			
VENEZUELA								3	6		2		12				
VIETNAM												5	4	10			
YUGOSLAVIA								3	3		2		2	100	1	3	

† United Arab Republic (Egypt)

* Includes Coastguard

§ Round figures are estimated

TABLE SHOWING THE NUMERICAL STRENGTH OF EACH COUNTRY

Amphibious Force Flagships	Ocean Minesweepers, Fleet Minesweepers	Coastal Minesweepers, Mine Hunters	Inshore Minesweepers, Minesweeping Boats	River Gunboats	Motor Launches, Small Patrol Craft	Landing Ships	Landing Craft	Boom Defence Vessels, Netlayers	Survey Ships	Depot Ships, Repair Ships, Maintenance Ships	Transports	Supply Ships	Oilers	Training Ships	Tugs	Miscellaneous			
	4					7	3		4	1	5		5	2		2	..	...	ARGENTINA
		6			3			3	2				1		3	9	..	...	AUSTRALIA
	5	26	16		7						2				1	13	..	...	BELGIUM
		4		8	5				7	2	4		10	2	12	2	..	...	BRAZIL
	2	4	24				16							1	1	2	..	...	BULGARIA
	1			21	13		8				1					2	..	...	BURMA
		10			3			5	5	3		3	2		28	70	..	...	CANADA
					6											1	..	...	CEYLON
						3	7		2		2		1	1	15	3	..	...	CHILE
	12	28		13	61	31	28	6	2	1	1	8	5	2	11	400	..	...	CHINA
				5	18				1		6		3		13	4	..	...	COLOMBIA
					27										1	6	..	...	CUBA
		8	18		13		10		1	3			2			7	..	...	DENMARK
					7	1	2						2			5	2	..	DOMINICAN R.
					6	2									2	2	..	...	ECUADOR
			5		14						9				3	9	..	...	FINLAND
	15	71	15		13	9	10	12	5	10	8	16	7	4	22	30	..	...	FRANCE
	22		87		93		20		3				3	2	7	30	..	...	GERMANY (E)
		24	35		34	6	1		8	16		6	10	3	18	20	..	...	GERMANY (W)
	5	20			5	15	8	1	2	2			7		14	10	..	...	GREECE
		4	2		13	1	1		4	1			3		1	10	..	...	INDIA
	6	15			82	11	6		2	3	4		4	2	5	5	..	...	INDONESIA
		4	2		24		3			1			2		1	2	..	...	IRAN
					4										1	2	..	...	IRAQ
					5		3									2	..	...	ISRAEL
	4	54	20				23	2	2	1	5		2	4	26	90	..	...	ITALY
		35	11		32	4	6			3			2		3	160	..	...	JAPAN
	10		20		3											70	..	...	KOREA (N)
		11	1			20				1	1	6	4		2	6	..	...	KOREA (S.)
			4		14		1			1						2	..	...	MALAYSIA
					2		6				5			1	3	1	..	...	MEXICO
	6	46	16		5		7	1	3	1		3	1	3	7	20	..	...	NETHERLANDS
	4				12				1	2		1				2	..	...	NEW ZEALAND
	2	7							1					1		5	..	...	NORWAY
		8			6				1				2		4	3	..	...	PAKISTAN
				3	5											1	..	...	PARAGUAY
		2		7	10	4					3		3		3	3	..	...	PERU
		2			33	6			1	1	1		1		4	5	..	...	PHILIPPINES
	12	4			17				1				3	2		9	..	...	POLAND
	4	12			29				6				2	1		11	..	...	PORTUGAL
	14		22							1				1		2	..	...	RUMANIA
	2	10			10			2	1							2	..	...	SOUTH AFRICA
	13	12		1	17	8		1	3		3		4	1	10	20	..	...	SPAIN
	6	18	19		12		12		12	2		1	3	2		17	..	...	SWEDEN
	5	8			50	45	38		2	3	6		5		5	60	..	...	TAIWAN
	1	4			8	5	8		1		1		4	1	5	3	..	...	THAILAND
	11	14			30			5		2			4	1	2	5	..	...	TURKEY
	6	6	2		3		19				1					2	..	...	U.A.R.
		91	43		17	7	7	27	12	11		20	40		70	70	..	...	UNITED KINGDOM
					1				1				1			1	..	...	URUGUAY
5	120	32	50		100*	135	125	2	20	60	40	100	70	2	140*	300*	..	...	U.S.A.
	175	250	275	20	100	24	106	18	55	50	25	20	50	20	40	200	..	...	U.S.S.R.
					12	4			3	1	1				2	3	..	...	VENEZUELA
		3				18	7					1	2		14	10	..	...	VIET NAM
		3	30	3	20		7				12		6	1	8	20	..	...	YUGOSLAVIA

Note.—Figures include vessels in reserve, but not ships under construction

GENERAL INDEX

(Named Ships only)

Abbreviations in () following the name of the ship indicates the country

Al Albania
A Argentina
R.A.N. Australia
B Belgium
Br Brazil
Bul Bulgaria
Bur Burma
Ca Cambodia
Cam Cameroon
R.C.N. Canada
Chi Chile
C China
Co Congo
Col Colombia
C.R. Costa Rica
Cu Cuba
D Denmark
Dom Dominican
EA East Africa
Ec Ecuador
Eg Egypt
Ei Eire
ES El Salvador

Et Ethiopia
G Gaboon
Ger West Germany
GE East Germany
Gh Ghana
Gr Greece
Gu Guatemala
Gui Guinea
H.K. Hong Kong
Hon Honduras
Hun Hungary
I.C. Ivory Coast
Ice Iceland
In India
Ind Indonesia
Ir Iran
Ira Iraq
Is Israel
I Italy
J Japan
K.N. Korea North
Kor Korea

L Laos
Le Lebanon
Li Liberia
Lib Libya
Ma Madagascar
M Malaya
Mal Mali
Mex Mexico
Mor Morocco
N Netherlands
R.N.Z. New Zealand
Nic Nicaragua
Nig Nigeria
Nor Norway
Pa Pakistan
Pan Panama
Par Paraguay
P Peru
Ph Philippines
Po Poland
Por Portugal
R. Rumania

S.A. South Africa
Sau Saudi Arabia
Sen Senegal
S.L. Sierra Leone
Som Somalia
Sp Spain
Sw Sweden
Su Sudan
Sy Syria
T.C. Taiwan China
Th Thailand
To Togo
Tu Tunisia
T Turkey
U.K. United Kingdom
U.S.A. United States of America
U.S.S.R. U.S.S.R.
Ven Venezuela
V.M. Viet Minh
V Vietnam
Y Yugoslavia
Z Zanzibar

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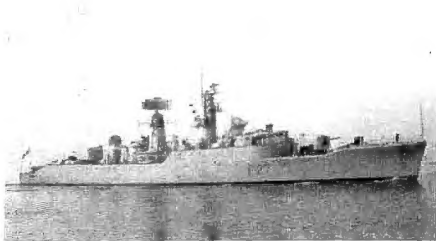
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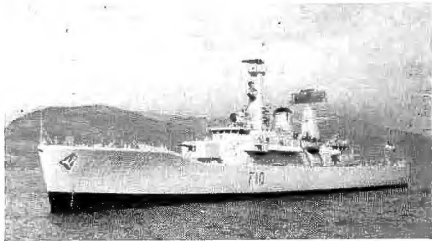
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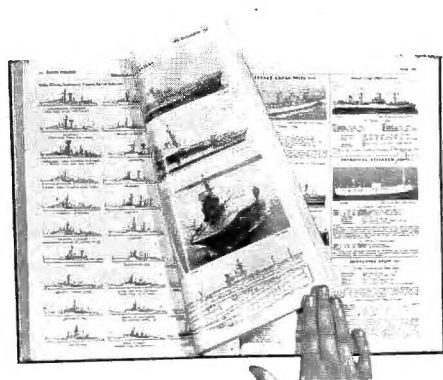
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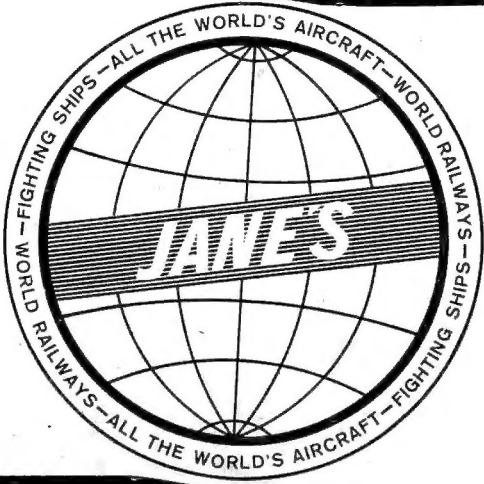
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